



SEQUENCE LISTING

<110> ITOH, Kyogo  
SHICHIJO, Shigeki

<120> TUMOR ANTIGEN

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1 5

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lymphocytes

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Gly Ile Ser Leu Ala Asn Gln Gln Tyr Val  
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Phe Leu His Ser Gly His Leu His Ala  
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Glu Leu Val Arg Phe Arg Gln Lys Val  
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Met Val Leu Asp Leu Met Gln Gln Leu  
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lymphocytes

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lymphocytes

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<400> 149

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Phe Val Ile Ser Leu Pro Val Cys Ser Leu  
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Leu Gln Phe Asp Glu Asn Thr Asn Trp Leu  
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Phe Leu Asn Gly Tyr Asn Cys Thr Val  
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Ala Met Leu Lys Thr Arg Arg Ser Tyr Leu  
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Thr Leu Met Lys Pro Ser Ser Phe Thr Thr  
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Leu Leu Val Asn Ser Gly Pro Leu Ala Val  
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Met Leu Gly Ser Ala Asp Glu Pro Gly Val  
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<400> 158

Lys Gln Asn Asp Leu Pro Gly Ile Ser Val



1 5 10

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<400> 159

Tyr Leu Thr Met Leu His Leu Tyr Leu Cys  
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Ile Thr Gly Glu Ala Phe Val Gln Phe Ala  
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<400> 161

Val Val Ala Cys Asn Leu Tyr Pro Phe Val  
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<400> 162

Met Leu Gly Gly Arg Val Lys Thr Leu  
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<210> 163  
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<400> 163

Gln Leu Tyr Thr Leu Gln Pro Lys Leu  
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<210> 164  
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<400> 164

Gly Leu Val Glu Phe Ala Arg Asn Leu  
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Phe	Val	Ala	Leu	Ser	Asp	Val	Cys	Asp	Val
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Arg	Leu	Asp	Phe	Asn	Leu	Ile	Arg	Val
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<210> 167  
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<400> 168

Cys Met Val Tyr Asp Leu Tyr Lys Thr Leu  
1 5 10

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<400> 169

Trp Gln Leu Val Lys Glu Leu Lys Glu Ala  
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<400> 170

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<400> 171

Ala Leu Phe Pro Gly Leu Ala Pro Glu Thr  
1 5 10

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Met Met Met Leu Gln Asn Ile Leu Gln Ile  
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<400> 185

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Thr Leu Asn His Ile Glu Pro Leu Lys Ile  
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Leu Met Ala Leu Pro Pro Cys His Ala Leu  
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lymphocytes

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lymphocytes

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lymphocytes

<400> 191

Val Leu Phe Tyr Ala Ile Thr Thr Leu  
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lymphocytes

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<400> 194

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Phe Met Ile Leu Ala Ser Pro Arg Tyr Val  
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<400> 196

Lys Leu Thr Ser Leu Gln Leu Gln His Leu  
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Ser Leu Gln Leu Gln His Leu Phe Met Ile  
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Gln Val Leu Pro Met Leu Arg Phe Val  
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<400> 201

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<400> 202

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<212> PRT

<213> Artificial

<220>

<223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes

<400> 204

Phe Leu Gln Leu Gln Ser Ile Lys Asp Ala

1 5 10

<210> 205

<211> 9

<212> PRT

<213> Artificial

<220>

<223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes

<400> 205

Lys Ile Leu Phe Lys Thr Trp His Leu

1 5

<210> 206

<211> 9

<212> PRT

<213> Artificial

<220>

<223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes

<400> 206

Ile Leu Phe Lys Thr Trp His Leu Ile

1 5

<210> 207

<211> 9

<212> PRT

<213> Artificial

<220>

<223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes

<400> 207

Phe Leu Pro Pro Phe Ser Leu Ser Leu

1 5



<210> 208

<211> 10

<212> PRT

<213> Artificial

<220>

<223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes

<400> 208

Ser Leu Pro Leu Phe Leu Pro Pro Phe Leu  
1 5 10

<210> 209

<211> 10

<212> PRT

<213> Artificial

<220>

<223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes

<400> 209

Gly Leu Tyr Phe Leu Tyr Ser Met Pro Val  
1 5 10

<210> 210

<211> 10

<212> PRT

<213> Artificial

<220>

<223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes

<400> 210

Phe Val Gly Gly His Val Gly Trp Pro Thr  
1 5 10

<210> 211  
<211> 10  
<212> PRT  
<213> Artificial

<220>  
<223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes

<400> 211

Arg Leu His Asn Asp Arg Val Tyr Tyr Val  
1 5 10

<210> 212  
<211> 10  
<212> PRT  
<213> Artificial

<220>  
<223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes

<400> 212

Tyr Ile Gly Glu Asn Leu Gln Leu Leu Val  
1 5 10

<210> 213  
<211> 9  
<212> PRT  
<213> Artificial

<220>  
<223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes

<400> 213

Tyr Val Ser Glu Lys Ile Met Lys Leu  
1 5

<210> 214  
 <211> 335  
 <212> PRT  
 <213> Homo sapiens

<400> 214

Met Gly Lys Val Lys Val Gly Val Asn Gly Phe Gly Arg Ile Gly Arg  
 1 5 10 15

Leu Val Thr Arg Ala Ala Phe Asn Ser Gly Lys Val Asp Ile Val Ala  
 20 25 30

Ile Asn Asp Pro Phe Ile Asp Leu Asn Tyr Met Val Tyr Met Phe Gln  
 35 40 45

Tyr Asp Ser Thr His Gly Lys Phe His Gly Thr Val Lys Ala Glu Asn  
 50 55 60

Gly Lys Leu Val Ile Asn Gly Asn Pro Ile Thr Ile Phe Gln Glu Arg  
 65 70 75 80

Asp Pro Ser Lys Ile Lys Trp Gly Asp Ala Gly Ala Glu Tyr Val Val  
 85 90 95

Glu Ser Thr Gly Val Phe Thr Thr Met Glu Lys Ala Gly Ala His Leu  
 100 105 110

Gln Gly Gly Ala Lys Arg Val Ile Ile Ser Ala Pro Ser Ala Asp Ala  
 115 120 125

Pro Met Phe Val Met Gly Val Asn His Glu Lys Tyr Asp Asn Ser Leu  
 130 135 140

Lys Ile Ile Ser Asn Ala Ser Cys Thr Thr Asn Cys Leu Ala Pro Leu  
 145 150 155 160

Ala Lys Val Ile His Asp Asn Phe Gly Ile Val Glu Gly Leu Met Thr  
165 170 175

Thr Val His Ala Ile Thr Ala Thr Gln Lys Thr Val Asp Gly Pro Ser  
180 185 190

Gly Lys Leu Trp Arg Asp Gly Arg Gly Ala Leu Gln Asn Ile Ile Pro  
195 200 205

Ala Ser Thr Gly Ala Ala Lys Ala Val Gly Lys Val Ile Pro Glu Leu  
210 215 220

Asn Gly Lys Leu Thr Gly Met Ala Phe Arg Val Pro Thr Ala Asn Val  
225 230 235 240

Ser Val Val Asp Leu Thr Cys Arg Leu Glu Lys Pro Ala Lys Tyr Asp  
245 250 255

Asp Ile Lys Lys Val Val Lys Gln Ala Ser Glu Gly Pro Leu Lys Gly  
260 265 270

Ile Leu Gly Tyr Thr Glu His Gln Val Val Ser Ser Asp Phe Asn Ser  
275 280 285

Asp Thr His Ser Ser Thr Phe Asp Ala Gly Ala Gly Ile Ala Leu Asn  
290 295 300

Asp His Phe Val Lys Leu Ile Ser Trp Tyr Asp Asn Glu Phe Gly Tyr  
305 310 315 320

Ser Asn Arg Val Val Asp Leu Met Ala His Met Ala Ser Lys Glu  
325 330 335

<210> 215

<211> 599  
<212> PRT  
<213> Homo sapiens

<400> 215

Met Ala Asp Lys Leu Thr Arg Ile Ala Ile Val Asn His Asp Lys Cys  
1 5 10 15

Lys Pro Lys Lys Cys Arg Gln Glu Cys Lys Lys Ser Cys Pro Val Val  
20 25 30

Arg Met Gly Lys Leu Cys Ile Glu Val Thr Pro Gln Ser Lys Ile Ala  
35 40 45

Trp Ile Ser Glu Thr Leu Cys Ile Gly Cys Gly Ile Cys Ile Lys Lys  
50 55 60

Cys Pro Phe Gly Ala Leu Ser Ile Val Asn Leu Pro Ser Asn Leu Glu  
65 70 75 80

Lys Glu Thr Thr His Arg Tyr Cys Ala Asn Ala Phe Lys Leu His Arg  
85 90 95

Leu Pro Ile Pro Arg Pro Gly Glu Val Leu Gly Leu Val Gly Thr Asn  
100 105 110

Gly Ile Gly Lys Ser Thr Ala Leu Lys Ile Leu Ala Gly Lys Gln Lys  
115 120 125

Pro Asn Leu Gly Lys Tyr Asp Asp Pro Pro Asp Trp Gln Glu Ile Leu  
130 135 140

Thr Tyr Phe Arg Gly Ser Glu Leu Gln Asn Tyr Phe Thr Lys Ile Leu  
145 150 155 160

Glu Asp Asp Leu Lys Ala Ile Ile Lys Pro Gln Tyr Val Asp Gln Ile  
165 170 175

Pro Lys Ala Ala Lys Gly Thr Val Gly Ser Ile Leu Asp Arg Lys Asp  
180 185 190

Glu Thr Lys Thr Gln Ala Ile Val Cys Gln Gln Leu Asp Leu Thr His  
195 200 205

Leu Lys Glu Arg Asn Val Glu Asp Leu Ser Gly Gly Glu Leu Gln Arg  
210 215 220

Phe Ala Cys Ala Val Val Cys Ile Gln Lys Ala Asp Ile Phe Met Phe  
225 230 235 240

Asp Glu Pro Ser Ser Tyr Leu Asp Val Lys Gln Arg Leu Lys Ala Ala  
245 250 255

Ile Thr Ile Arg Ser Leu Ile Asn Pro Asp Arg Tyr Ile Ile Val Val  
260 265 270

Glu His Asp Leu Ser Val Leu Asp Tyr Leu Ser Asp Phe Ile Cys Cys  
275 280 285

Leu Tyr Gly Val Pro Ser Ala Tyr Gly Val Val Thr Met Pro Phe Ser  
290 295 300

Val Arg Glu Gly Ile Asn Ile Phe Leu Asp Gly Tyr Val Pro Thr Glu  
305 310 315 320

Asn Leu Arg Phe Arg Asp Ala Ser Leu Val Phe Lys Val Ala Glu Thr  
325 330 335

Ala Asn Glu Glu Glu Val Lys Lys Met Cys Met Tyr Lys Tyr Pro Gly  
340 345 350

Met Lys Lys Lys Met Gly Glu Phe Glu Leu Ala Ile Val Ala Gly Glu  
 355 360 365

Phe Thr Asp Ser Glu Ile Met Val Met Leu Gly Glu Asn Gly Thr Gly  
 370 375 380

Lys Thr Thr Phe Ile Arg Met Leu Ala Gly Arg Leu Lys Pro Asp Glu  
 385 390 395 400

Gly Gly Glu Val Pro Val Leu Asn Val Ser Tyr Lys Pro Gln Lys Ile  
 405 410 415

Ser Pro Lys Ser Thr Gly Ser Val Arg Gln Leu Leu His Glu Lys Ile  
 420 425 430

Arg Asp Ala Tyr Thr His Pro Gln Phe Val Thr Asp Val Met Lys Pro  
 435 440 445

Leu Gln Ile Glu Asn Ile Ile Asp Gln Glu Val Gln Thr Leu Ser Gly  
 450 455 460

Gly Glu Leu Gln Arg Val Ala Leu Ala Leu Cys Leu Gly Lys Pro Ala  
 465 470 475 480

Asp Val Tyr Leu Ile Asp Glu Pro Ser Ala Tyr Leu Asp Ser Glu Gln  
 485 490 495

Arg Leu Met Ala Ala Arg Val Val Lys Arg Phe Ile Leu His Ala Lys  
 500 505 510

Lys Thr Ala Phe Val Val Glu His Asp Phe Ile Met Ala Thr Tyr Leu  
 515 520 525

Ala Asp Arg Val Ile Val Phe Asp Gly Val Pro Ser Lys Asn Thr Val  
530 535 540

Ala Asn Ser Pro Gln Thr Leu Leu Ala Gly Met Asn Lys Phe Leu Ser  
545 550 555 560

Gln Leu Glu Ile Thr Phe Arg Arg Asp Pro Asn Asn Tyr Arg Pro Arg  
565 570 575

Ile Asn Lys Leu Asn Ser Ile Lys Asp Val Glu Gln Lys Lys Ser Gly  
580 585 590

Asn Tyr Phe Phe Leu Asp Asp  
595

<210> 216  
<211> 101  
<212> PRT  
<213> Homo sapiens

<400> 216

Met Ser Asp Gln Glu Ala Lys Pro Ser Thr Glu Asp Leu Gly Asp Lys  
1 5 10 15

Lys Glu Gly Glu Tyr Ile Lys Leu Lys Val Ile Gly Gln Asp Ser Ser  
20 25 30

Glu Ile His Phe Lys Val Lys Met Thr Thr His Leu Lys Lys Leu Lys  
35 40 45

Glu Ser Tyr Cys Gln Arg Gln Gly Val Pro Met Asp Ser Leu Arg Phe  
50 55 60

Leu Phe Glu Gly Gln Arg Ile Ala Asp Asp His Thr Pro Lys Glu Leu  
65 70 75 80



Gly Met Glu Glu Glu Asp Val Ile Glu Val Tyr Gln Glu Gln Thr Gly  
85 90 95

Gly His Ser Thr Val  
100

<210> 217

<211> 249

<212> PRT

<213> Homo sapiens

<400> 217

Met Lys Leu Asn Ile Ser Phe Pro Ala Thr Gly Cys Gln Lys Leu Ile  
1 5 10 15

Glu Val Asp Asp Glu Arg Lys Leu Arg Thr Phe Tyr Glu Lys Arg Met  
20 25 30

Ala Thr Glu Val Ala Ala Asp Ala Leu Gly Glu Glu Trp Lys Gly Tyr  
35 40 45

Val Val Arg Ile Ser Gly Gly Asn Asp Lys Gln Gly Phe Pro Met Lys  
50 55 60

Gln Gly Val Leu Thr His Gly Arg Val Arg Leu Leu Leu Ser Lys Gly  
65 70 75 80

His Ser Cys Tyr Arg Pro Arg Arg Thr Gly Glu Arg Lys Arg Lys Ser  
85 90 95

Val Arg Gly Cys Ile Val Asp Ala Asn Leu Ser Val Leu Asn Leu Val  
100 105 110

Ile Val Lys Lys Gly Glu Lys Asp Ile Pro Gly Leu Thr Asp Thr Thr  
115 120 125

Val Pro Arg Arg Leu Gly Pro Lys Arg Ala Ser Arg Ile Arg Lys Leu  
130 135 140

Phe Asn Leu Ser Lys Glu Asp Asp Val Arg Gln Tyr Val Val Arg Lys  
145 150 155 160

Pro Leu Asn Lys Glu Gly Lys Lys Pro Arg Thr Lys Ala Pro Lys Ile  
165 170 175

Gln Arg Leu Val Thr Pro Arg Val Leu Gln His Lys Arg Arg Arg Ile  
180 185 190

Ala Leu Lys Lys Gln Arg Thr Lys Lys Asn Lys Glu Glu Ala Ala Glu  
195 200 205

Tyr Ala Lys Leu Leu Ala Lys Arg Met Lys Glu Ala Lys Glu Lys Arg  
210 215 220

Gln Glu Gln Ile Ala Lys Arg Arg Arg Leu Ser Ser Leu Arg Ala Ser  
225 230 235 240

Thr Ser Lys Ser Glu Ser Ser Gln Lys  
245

<210> 218  
<211> 184  
<212> PRT  
<213> Homo sapiens

<400> 218

Met Arg Glu Tyr Lys Leu Val Val Leu Gly Ser Gly Gly Val Gly Lys  
1 5 10 15

Ser Ala Leu Thr Val Gln Phe Val Gln Gly Ile Phe Val Glu Lys Tyr

20

25

30

Asp Pro Thr Ile Glu Asp Ser Tyr Arg Lys Gln Val Glu Val Asp Ala  
 35 40 45

Gln Gln Cys Met Leu Glu Ile Leu Asp Thr Ala Gly Thr Glu Gln Phe  
 50 55 60

Thr Ala Met Arg Asp Leu Tyr Met Lys Asn Gly Gln Gly Phe Ala Leu  
 65 70 75 80

Val Tyr Ser Ile Thr Ala Gln Ser Thr Phe Asn Asp Leu Gln Asp Leu  
 85 90 95

Arg Glu Gln Ile Leu Arg Val Lys Asp Thr Asp Asp Val Pro Met Ile  
 100 105 110

Leu Val Gly Asn Lys Cys Asp Leu Glu Asp Glu Arg Val Val Gly Lys  
 115 120 125

Glu Gln Gly Gln Asn Leu Ala Arg Gln Trp Asn Asn Cys Ala Phe Leu  
 130 135 140

Glu Ser Ser Ala Lys Ser Lys Ile Asn Val Asn Glu Ile Phe Tyr Asp  
 145 150 155 160

Leu Val Arg Gln Ile Asn Arg Lys Thr Pro Val Pro Gly Lys Ala Arg  
 165 170 175

Lys Lys Ser Ser Cys Gln Leu Leu  
 180

<210> 219

<211> 162

<212> PRT

<213> Homo sapiens

<400> 219

Met Lys Glu Thr Ile Met Asn Gln Glu Lys Leu Ala Lys Leu Gln Ala  
1 5 10 15

Gln Val Arg Ile Gly Gly Lys Gly Thr Ala Arg Arg Lys Lys Lys Val  
20 25 30

Val His Arg Thr Ala Thr Ala Asp Asp Lys Lys Leu Gln Phe Ser Leu  
35 40 45

Lys Lys Leu Gly Val Asn Asn Ile Ser Gly Ile Glu Glu Val Asn Met  
50 55 60

Phe Thr Asn Gln Gly Thr Val Ile His Phe Asn Asn Pro Lys Val Gln  
65 70 75 80

Ala Ser Leu Ala Ala Asn Thr Phe Thr Ile Thr Gly His Ala Glu Thr  
85 90 95

Lys Gln Leu Thr Glu Met Leu Pro Ser Ile Leu Asn Gln Leu Gly Ala  
100 105 110

Asp Ser Leu Thr Ser Leu Arg Arg Leu Ala Glu Ala Leu Pro Lys Gln  
115 120 125

Ser Val Asp Gly Lys Ala Pro Leu Ala Thr Gly Glu Asp Asp Asp Asp  
130 135 140

Glu Val Pro Asp Leu Val Glu Asn Phe Asp Glu Ala Ser Lys Asn Glu  
145 150 155 160

Ala Asn

<210> 220  
 <211> 180  
 <212> PRT  
 <213> Homo sapiens

<400> 220

Met Arg Pro Leu Thr Glu Glu Glu Thr Arg Val Met Phe Glu Lys Ile  
 1 5 10 15

Ala Lys Tyr Ile Gly Glu Asn Leu Gln Leu Leu Val Asp Arg Pro Asp  
 20 25 30

Gly Thr Tyr Cys Phe Arg Leu His Asn Asp Arg Val Tyr Tyr Val Ser  
 35 40 45

Glu Lys Ile Met Lys Leu Ala Ala Asn Ile Ser Gly Asp Lys Leu Val  
 50 55 60

Ser Leu Gly Thr Cys Phe Gly Lys Phe Thr Lys Thr His Lys Phe Arg  
 65 70 75 80

Leu His Val Thr Ala Leu Asp Tyr Leu Ala Pro Tyr Ala Lys Tyr Lys  
 85 90 95

Val Trp Ile Lys Pro Gly Ala Glu Gln Ser Phe Leu Tyr Gly Asn His  
 100 105 110

Val Leu Lys Ser Gly Leu Gly Arg Ile Thr Glu Asn Thr Ser Gln Tyr  
 115 120 125

Gln Gly Val Val Val Tyr Ser Met Ala Asp Ile Pro Leu Gly Phe Gly  
 130 135 140

Val Ala Ala Lys Ser Thr Gln Asp Cys Arg Lys Val Asp Pro Met Ala



Val Glu Gly Asp Ile Trp Ala Leu Gln Lys Asp Val Glu Asp Phe Leu  
 115 120 125

Ser Pro Leu Leu Gly Lys Thr Pro Val Thr Gln Val Asn Glu Val Thr  
 130 135 140

Gly Thr Leu Arg Ile Lys Gly Tyr Phe Asp Gln Glu Leu Lys Ala Trp  
 145 150 155 160

Leu Leu Glu Lys Gly Phe  
 165

<210> 222

<211> 194

<212> PRT

<213> Homo sapiens

<400> 222

Met Ala Ala Ser Leu Val Gly Lys Lys Ile Val Phe Val Thr Gly Asn  
 1 5 10 15

Ala Lys Lys Leu Glu Glu Val Val Gln Ile Leu Gly Asp Lys Phe Pro  
 20 25 30

Cys Thr Leu Val Ala Gln Lys Ile Asp Leu Pro Glu Tyr Gln Gly Glu  
 35 40 45

Pro Asp Glu Ile Ser Ile Gln Lys Cys Gln Glu Ala Val Arg Gln Val  
 50 55 60

Gln Gly Pro Val Leu Val Glu Asp Thr Cys Leu Cys Phe Asn Ala Leu  
 65 70 75 80

Gly Gly Leu Pro Gly Pro Tyr Ile Lys Trp Phe Leu Glu Lys Leu Lys  
 85 90 95

Pro Glu Gly Leu His Gln Leu Leu Ala Gly Phe Glu Asp Lys Ser Ala  
100 105 110

Tyr Ala Leu Cys Thr Phe Ala Leu Ser Thr Gly Asp Pro Ser Gln Pro  
115 120 125

Val Arg Leu Phe Arg Gly Arg Thr Ser Gly Arg Ile Val Ala Pro Arg  
130 135 140

Gly Cys Gln Asp Phe Gly Trp Asp Pro Cys Phe Gln Pro Asp Gly Tyr  
145 150 155 160

Glu Gln Thr Tyr Ala Glu Met Pro Lys Ala Glu Lys Asn Ala Val Ser  
165 170 175

His Arg Phe Arg Ala Leu Leu Glu Leu Gln Glu Tyr Phe Gly Ser Leu  
180 185 190

Ala Ala

<210> 223  
<211> 466  
<212> PRT  
<213> Homo sapiens

<400> 223

Met Ser Tyr Pro Gly Tyr Pro Pro Thr Gly Tyr Pro Pro Phe Pro Gly  
1 5 10 15

Tyr Pro Pro Ala Gly Gln Glu Ser Ser Phe Pro Pro Ser Gly Gln Tyr  
20 25 30

Pro Tyr Pro Ser Gly Phe Pro Pro Met Gly Gly Gly Ala Tyr Pro Gln  
35 40 45



Val Pro Ser Ser Gly Tyr Pro Gly Ala Gly Gly Tyr Pro Ala Pro Gly  
50 55 60

Gly Tyr Pro Ala Pro Gly Gly Tyr Pro Gly Ala Pro Gln Pro Gly Gly  
65 70 75 80

Ala Pro Ser Tyr Pro Gly Val Pro Pro Gly Gln Gly Phe Gly Val Pro  
85 90 95

Pro Gly Gly Ala Gly Phe Ser Gly Tyr Pro Gln Pro Pro Ser Gln Ser  
100 105 110

Tyr Gly Gly Gly Pro Ala Gln Val Pro Leu Pro Gly Gly Phe Pro Gly  
115 120 125

Gly Gln Met Pro Ser Gln Tyr Pro Gly Gly Gln Pro Thr Tyr Pro Ser  
130 135 140

Gln Pro Ala Thr Val Thr Gln Val Thr Gln Gly Thr Ile Arg Pro Ala  
145 150 155 160

Ala Asn Phe Asp Ala Ile Arg Asp Ala Glu Ile Leu Arg Lys Ala Met  
165 170 175

Lys Gly Phe Gly Thr Asp Glu Gln Ala Ile Val Asp Val Val Ala Asn  
180 185 190

Arg Ser Asn Asp Gln Arg Gln Lys Ile Lys Ala Ala Phe Lys Thr Ser  
195 200 205

Tyr Gly Lys Asp Leu Ile Lys Asp Leu Lys Ser Glu Leu Ser Gly Asn  
210 215 220

Met Glu Glu Leu Ile Leu Ala Leu Phe Met Pro Pro Thr Tyr Tyr Asp  
 225 230 235 240

Ala Trp Ser Leu Arg Leu Ala Met Gln Gly Ala Gly Thr Gln Glu Arg  
 245 250 255

Val Leu Ile Glu Ile Leu Cys Thr Arg Thr Asn Gln Glu Ile Arg Glu  
 260 265 270

Ile Val Arg Cys Tyr Gln Ser Glu Phe Gly Arg Asp Leu Glu Leu Asp  
 275 280 285

Ile Arg Ser Asp Thr Ser Gly His Phe Glu Arg Leu Leu Val Ser Met  
 290 295 300

Cys Gln Gly Asn Arg Asp Glu Asn Gln Ser Ile Asn His Gln Met Ala  
 305 310 315 320

Gln Glu Asp Ala Gln Arg Leu Tyr Gln Ala Gly Glu Gly Arg Leu Gly  
 325 330 335

Thr Asp Glu Ser Cys Phe Asn Met Ile Leu Ala Thr Arg Ser Phe Pro  
 340 345 350

Gln Leu Arg Ala Thr Met Glu Ala Tyr Ser Arg Met Ala Asn Arg Asp  
 355 360 365

Leu Leu Ser Ser Val Ser Arg Glu Phe Ser Gly Tyr Val Glu Ser Gly  
 370 375 380

Leu Lys Thr Ile Leu Gln Cys Ala Leu Asn Arg Pro Ala Phe Phe Ala  
 385 390 395 400

Glu Arg Leu Tyr Tyr Ala Met Lys Gly Ala Gly Thr Asp Asp Ser Thr  
 405 410 415

Leu Val Arg Ile Val Val Thr Arg Ser Glu Ile Asp Leu Val Gln Ile  
420 425 430

Lys Gln Met Phe Ala Gln Met Tyr Gln Lys Thr Leu Gly Thr Met Ile  
435 440 445

Ala Gly Asp Thr Ser Gly Asp Tyr Arg Arg Leu Leu Leu Ala Ile Val  
450 455 460

Gly Gln  
465

<210> 224  
<211> 130  
<212> PRT  
<213> Homo sapiens

<400> 224

Met Val Arg Met Asn Val Leu Ala Asp Ala Leu Lys Ser Ile Asn Asn  
1 5 10 15

Ala Glu Lys Arg Gly Lys Arg Gln Val Leu Ile Arg Pro Cys Ser Lys  
20 25 30

Val Ile Val Arg Phe Leu Thr Val Met Met Lys His Gly Tyr Ile Gly  
35 40 45

Glu Phe Glu Ile Ile Asp Asp His Arg Ala Gly Lys Ile Val Val Asn  
50 55 60

Leu Thr Gly Arg Leu Asn Lys Cys Gly Val Ile Ser Pro Arg Phe Asp  
65 70 75 80

Val Gln Leu Lys Asp Leu Glu Lys Trp Gln Asn Asn Leu Leu Pro Ser

85

90

95

Arg Gln Phe Gly Phe Ile Val Leu Thr Thr Ser Ala Gly Ile Met Asp  
                   100                                  105                                  110

His Glu Glu Ala Arg Arg Lys His Thr Gly Gly Leu Ile Leu Gly Phe  
                   115                                  120                                  125

Phe Phe  
       130

<210> 225

<211> 192

<212> PRT

<213> Homo sapiens

<400> 225

Met Leu Thr Ile Leu Ser Asn Gln Thr Val Asp Ile Pro Glu Asn Val  
   1                  5                                  10                                  15

Asp Ile Thr Leu Lys Gly Arg Thr Val Ile Val Lys Gly Pro Arg Gly  
                   20                                  25                                  30

Thr Leu Arg Arg Asp Phe Asn His Ile Asn Val Glu Leu Ser Leu Leu  
                   35                                  40                                  45

Gly Lys Lys Lys Lys Arg Leu Arg Val Asp Lys Trp Trp Gly Asn Arg  
       50                                  55                                  60

Leu Glu Leu Ala Thr Val Arg Thr Ile Cys Ser His Val Gln Asn Met  
   65                                  70                                  75                                  80

Ile Lys Gly Val Thr Leu Gly Phe Arg Tyr Lys Met Arg Ser Val Tyr  
                   85                                  90                                  95

Ala His Phe Pro Ile Asn Val Val Ile Gln Glu Asn Gly Ser Leu Val  
100 105 110

Glu Ile Arg Asn Phe Leu Gly Glu Leu Tyr Ile Arg Arg Val Arg Met  
115 120 125

Arg Pro Gly Val Ala Cys Ser Val Ser Gln Ala Gln Lys Asp Glu Leu  
130 135 140

Ile Leu Glu Gly Asn Asp Ile Glu Leu Val Ser Asn Ser Ala Ala Leu  
145 150 155 160

Ile Gln Gln Ala Thr Thr Val Lys Asn Lys Asp Ile Arg Lys Phe Leu  
165 170 175

Asp Gly Ile Tyr Val Ser Glu Lys Gly Thr Val Gln Gln Ala Asp Glu  
180 185 190

<210> 226

<211> 67

<212> PRT

<213> Homo sapiens

<400> 226

Met Leu Leu Tyr Ile Asn Arg Ala Arg Pro Glu Gly Gly Arg Gly Ala  
1 5 10 15

Gly Ala Glu Gly Arg Ser Asn Gln Ile Ser Asn Phe Leu Leu Ile Ile  
20 25 30

Asn Pro Leu Phe Thr Ala Val Ser Val Val Ile Phe Leu Ile Phe Leu  
35 40 45

Ile Phe Phe Phe Phe Leu Leu Leu Leu Phe Thr Ser Cys Val Tyr Val  
50 55 60

Gly Asn Leu  
65

<210> 227  
<211> 66  
<212> PRT  
<213> Homo sapiens

<400> 227

Met His Phe His Asn Ile Cys Leu Leu Glu Arg Ser Ile Ile Ser Glu  
1 5 10 15

Lys Tyr Gln Val Phe Ile Lys Phe Leu Gly Met Ala Asp Ser Gln Asn  
20 25 30

Met Leu Val Ser Leu Gln Tyr Ser Ser Arg Arg Ala Asn Gln Gly Arg  
35 40 45

Ala Gly Met Arg Ser Asp Ile Cys Val Thr Lys Ser Ile Phe Leu Ile  
50 55 60

Ser Leu  
65

<210> 228  
<211> 145  
<212> PRT  
<213> Homo sapiens

<400> 228

Met Ile Leu Gln Cys Ser Ile Glu Met Pro Asn Ile Ser Tyr Ala Trp  
1 5 10 15

Lys Glu Leu Lys Glu Gln Leu Gly Glu Glu Ile Asp Ser Lys Val Lys  
20 25 30

Gly Met Val Phe Leu Lys Gly Lys Leu Gly Val Cys Phe Asp Val Pro  
35 40 45

Thr Ala Ser Val Thr Glu Ile Gln Glu Lys Trp His Asp Ser Arg Arg  
50 55 60

Trp Gln Leu Ser Val Ala Thr Glu Gln Pro Glu Leu Glu Gly Pro Arg  
65 70 75 80

Glu Gly Tyr Gly Gly Phe Arg Gly Gln Arg Glu Gly Ser Arg Gly Phe  
85 90 95

Arg Gly Gln Arg Asp Gly Asn Arg Arg Phe Arg Gly Gln Arg Glu Gly  
100 105 110

Ser Arg Gly Pro Arg Gly Gln Arg Ser Gly Gly Gly Asn Lys Ser Asn  
115 120 125

Arg Ser Gln Asn Lys Gly Gln Lys Arg Ser Phe Ser Lys Ala Phe Gly  
130 135 140

Gln  
145

<210> 229  
<211> 49  
<212> PRT  
<213> Homo sapiens

<400> 229

Met Arg Asn Ser Ala Thr Phe Lys Ser Phe Glu Asp Arg Val Gly Thr  
1 5 10 15

Ile Lys Ser Lys Val Val Gly Asp Arg Glu Asn Gly Ser Asp Asn Leu  
20 25 30

Pro Ser Ser Ala Gly Ser Gly Asp Lys Pro Leu Ser Asp Pro Ala Pro  
35 40 45

Phe

<210> 230  
<211> 208  
<212> PRT  
<213> Homo sapiens  
  
<400> 230

Met Gly Ile Ser Arg Asp Asn Trp His Lys Arg Arg Lys Thr Gly Gly  
1 5 10 15

Lys Arg Lys Pro Tyr His Lys Lys Arg Lys Tyr Glu Leu Gly Arg Pro  
20 25 30

Ala Ala Asn Thr Lys Ile Gly Pro Arg Arg Ile His Thr Val Arg Val  
35 40 45

Arg Gly Gly Asn Lys Lys Tyr Arg Ala Leu Arg Leu Asp Val Gly Asn  
50 55 60

Phe Ser Trp Gly Ser Glu Cys Cys Thr Arg Lys Thr Arg Ile Ile Asp  
65 70 75 80

Val Val Tyr Asn Ala Ser Asn Asn Glu Leu Val Arg Thr Lys Thr Leu  
85 90 95

Val Lys Asn Cys Ile Val Leu Ile Asp Ser Thr Pro Tyr Arg Gln Trp  
100 105 110

Tyr Glu Ser His Tyr Ala Leu Pro Leu Gly Arg Lys Lys Gly Ala Lys



115

120

125

Leu Thr Pro Glu Glu Glu Glu Ile Leu Asn Lys Lys Arg Ser Lys Lys  
 130 135 140

Ile Gln Lys Lys Tyr Asp Glu Arg Lys Lys Asn Ala Lys Ile Ser Ser  
 145 150 155 160

Leu Leu Glu Glu Gln Phe Gln Gln Gly Lys Leu Leu Ala Cys Ile Ala  
 165 170 175

Ser Arg Pro Gly Gln Cys Gly Arg Ala Asp Gly Tyr Val Leu Glu Gly  
 180 185 190

Lys Glu Leu Glu Phe Tyr Leu Arg Lys Ile Lys Ala Arg Lys Gly Lys  
 195 200 205

<210> 231

<211> 183

<212> PRT

<213> Homo sapiens

<400> 231

Met Thr Thr Ala Ser Thr Ser Gln Val Arg Gln Asn Tyr His Gln Asp  
 1 5 10 15

Ser Glu Ala Ala Ile Asn Arg Gln Ile Asn Leu Glu Leu Tyr Ala Ser  
 20 25 30

Tyr Val Tyr Leu Ser Met Ser Tyr Tyr Phe Asp Arg Asp Asp Val Ala  
 35 40 45

Leu Lys Asn Phe Ala Lys Tyr Phe Leu His Gln Ser His Glu Glu Arg  
 50 55 60

Glu His Ala Glu Lys Leu Met Lys Leu Gln Asn Gln Arg Gly Gly Arg  
65 70 75 80

Ile Phe Leu Gln Asp Ile Lys Lys Pro Asp Cys Asp Asp Trp Glu Ser  
85 90 95

Gly Leu Asn Ala Met Glu Cys Ala Leu His Leu Glu Lys Asn Val Asn  
100 105 110

Gln Ser Leu Leu Glu Leu His Lys Leu Ala Thr Asp Lys Asn Asp Pro  
115 120 125

His Leu Cys Asp Phe Ile Glu Thr His Tyr Leu Asn Glu Gln Val Lys  
130 135 140

Ala Ile Lys Glu Leu Gly Asp His Val Thr Asn Leu Arg Lys Met Gly  
145 150 155 160

Ala Pro Glu Ser Gly Leu Ala Glu Tyr Leu Phe Asp Lys His Thr Leu  
165 170 175

Gly Asp Ser Asp Asn Glu Ser  
180

<210> 232

<211> 403

<212> PRT

<213> Homo sapiens

<400> 232

Met Ser His Arg Lys Phe Ser Ala Pro Arg His Gly Ser Leu Gly Phe  
1 5 10 15

Leu Pro Arg Lys Arg Ser Ser Arg His Arg Gly Lys Val Lys Ser Phe  
20 25 30

Pro Lys Asp Asp Pro Ser Lys Pro Val His Leu Thr Ala Phe Leu Gly  
35 40 45

Tyr Lys Ala Gly Met Thr His Ile Val Arg Glu Val Asp Arg Pro Gly  
50 55 60

Ser Lys Val Asn Lys Lys Glu Val Val Glu Ala Val Thr Ile Val Glu  
65 70 75 80

Thr Pro Pro Met Val Val Val Gly Ile Val Gly Tyr Val Glu Thr Pro  
85 90 95

Arg Gly Leu Arg Thr Phe Lys Thr Val Phe Ala Glu His Ile Ser Asp  
100 105 110

Glu Cys Lys Arg Arg Phe Tyr Lys Asn Trp His Lys Ser Lys Lys Lys  
115 120 125

Ala Phe Thr Lys Tyr Cys Lys Lys Trp Gln Asp Glu Asp Gly Lys Lys  
130 135 140

Gln Leu Glu Lys Asp Phe Ser Ser Met Lys Lys Tyr Cys Gln Val Ile  
145 150 155 160

Arg Val Ile Ala His Thr Gln Met Arg Leu Leu Pro Leu Arg Gln Lys  
165 170 175

Lys Ala His Leu Met Glu Ile Gln Val Asn Gly Gly Thr Val Ala Glu  
180 185 190

Lys Leu Asp Trp Ala Arg Glu Arg Leu Glu Gln Gln Val Pro Val Asn  
195 200 205

Gln Val Phe Gly Gln Asp Glu Met Ile Asp Val Ile Gly Val Thr Lys

210

215

220

Gly Lys Gly Tyr Lys Gly Val Thr Ser Arg Trp His Thr Lys Lys Leu  
 225 230 235 240

Pro Arg Lys Thr His Arg Gly Leu Arg Lys Val Ala Cys Ile Gly Ala  
 245 250 255

Trp His Pro Ala Arg Val Ala Phe Ser Val Ala Arg Ala Gly Gln Lys  
 260 265 270

Gly Tyr His His Arg Thr Glu Ile Asn Lys Lys Ile Tyr Lys Ile Gly  
 275 280 285

Gln Gly Tyr Leu Ile Lys Asp Gly Lys Leu Ile Lys Asn Asn Ala Ser  
 290 295 300

Thr Asp Tyr Asp Leu Ser Asp Lys Ser Ile Asn Pro Leu Gly Gly Phe  
 305 310 315 320

Val His Tyr Gly Glu Val Thr Asn Asp Phe Val Met Leu Lys Gly Cys  
 325 330 335

Val Val Gly Thr Lys Lys Arg Val Leu Thr Leu Arg Lys Ser Leu Leu  
 340 345 350

Val Gln Thr Lys Arg Arg Ala Leu Glu Lys Ile Asp Leu Lys Phe Ile  
 355 360 365

Asp Thr Thr Ser Lys Phe Gly His Gly Arg Phe Gln Thr Met Glu Glu  
 370 375 380

Lys Lys Ala Phe Met Gly Pro Leu Lys Lys Asp Arg Ile Ala Lys Glu  
 385 390 395 400

Glu Gly Ala

<210> 233  
<211> 480  
<212> PRT  
<213> Homo sapiens

<400> 233

Met Ala Val Ala Arg Ala Ala Leu Gly Pro Leu Val Thr Gly Leu Tyr  
1 5 10 15

Asp Val Gln Ala Phe Lys Phe Gly Asp Phe Val Leu Lys Ser Gly Leu  
20 25 30

Ser Ser Pro Ile Tyr Ile Asp Leu Arg Gly Ile Val Ser Arg Pro Arg  
35 40 45

Leu Leu Ser Gln Val Ala Asp Ile Leu Phe Gln Thr Ala Gln Asn Ala  
50 55 60

Gly Ile Ser Phe Asp Thr Val Cys Gly Val Pro Tyr Thr Ala Leu Pro  
65 70 75 80

Leu Ala Thr Val Ile Cys Ser Thr Asn Gln Ile Pro Met Leu Ile Arg  
85 90 95

Arg Lys Glu Thr Lys Asp Tyr Gly Thr Lys Arg Leu Val Glu Gly Thr  
100 105 110

Ile Asn Pro Gly Glu Thr Cys Leu Ile Ile Glu Asp Val Val Thr Ser  
115 120 125

Gly Ser Ser Val Leu Glu Thr Val Glu Val Leu Gln Lys Glu Gly Leu  
130 135 140

Lys Val Thr Asp Ala Ile Val Leu Leu Asp Arg Glu Gln Gly Gly Lys  
 145 150 155 160

Asp Lys Leu Gln Ala His Gly Ile Arg Leu His Ser Val Cys Thr Leu  
 165 170 175

Ser Lys Met Leu Glu Ile Leu Glu Gln Gln Lys Lys Val Asp Ala Glu  
 180 185 190

Thr Val Gly Arg Val Lys Arg Phe Ile Gln Glu Asn Val Phe Val Ala  
 195 200 205

Ala Asn His Asn Gly Ser Pro Leu Ser Ile Lys Glu Ala Pro Lys Glu  
 210 215 220

Leu Ser Phe Gly Ala Arg Ala Glu Leu Pro Arg Ile His Pro Val Ala  
 225 230 235 240

Ser Lys Leu Leu Arg Leu Met Gln Lys Lys Glu Thr Asn Leu Cys Leu  
 245 250 255

Ser Ala Asp Val Ser Leu Ala Arg Glu Leu Leu Gln Leu Ala Asp Ala  
 260 265 270

Leu Gly Pro Ser Ile Cys Met Leu Lys Thr His Val Asp Ile Leu Asn  
 275 280 285

Asp Phe Thr Leu Asp Val Met Lys Glu Leu Ile Thr Leu Ala Lys Cys  
 290 295 300

His Glu Phe Leu Ile Phe Glu Asp Arg Lys Phe Ala Asp Ile Gly Asn  
 305 310 315 320

Thr Val Lys Lys Gln Tyr Glu Gly Gly Ile Phe Lys Ile Ala Ser Trp  
325 330 335

Ala Asp Leu Val Asn Ala His Val Val Pro Gly Ser Gly Val Val Lys  
340 345 350

Gly Leu Gln Glu Val Gly Leu Pro Leu His Arg Gly Cys Leu Leu Ile  
355 360 365

Ala Glu Met Ser Ser Thr Gly Ser Leu Ala Thr Gly Asp Tyr Thr Arg  
370 375 380

Ala Ala Val Arg Met Ala Glu Glu His Ser Glu Phe Val Val Gly Phe  
385 390 395 400

Ile Ser Gly Ser Arg Val Ser Met Lys Pro Glu Phe Leu His Leu Thr  
405 410 415

Pro Gly Val Gln Leu Glu Ala Gly Gly Asp Asn Leu Gly Gln Gln Tyr  
420 425 430

Asn Ser Pro Gln Glu Val Ile Gly Lys Arg Gly Ser Asp Ile Ile Ile  
435 440 445

Val Gly Arg Gly Ile Ile Ser Ala Ala Asp Arg Leu Glu Ala Ala Glu  
450 455 460

Met Tyr Arg Lys Ala Ala Trp Glu Ala Tyr Leu Ser Arg Leu Gly Val  
465 470 475 480

<210> 234

<211> 86

<212> PRT

<213> Homo sapiens

<400> 234

Met Tyr Leu Tyr Leu Ile Ser Ser Cys Ile Lys Pro Ile Asn Leu Cys  
1 5 10 15

Tyr Cys Ser Ser Asn Leu Met His Thr Val Ile Ser Cys Tyr Ile Cys  
20 25 30

Lys Val Gly Asn Cys Phe Leu Ser Tyr Arg Ser Phe Lys Leu His Phe  
35 40 45

Cys Ala Val Glu Thr Lys Val Gly Tyr Ser Leu Cys His Val Asp Val  
50 55 60

Gln Phe Leu Lys Leu Phe Tyr Lys Thr Leu Ile Ile Lys Pro Leu Asn  
65 70 75 80

Leu Lys Lys Lys Lys Lys  
85

<210> 235

<211> 54

<212> PRT

<213> Homo sapiens

<400> 235

Met Leu Cys Gly Asn Ile Tyr Pro Ile Asp His Pro Ile Leu Met Cys  
1 5 10 15

Leu Trp Leu Ser Asp Gln Leu Gln Asn Asn Cys Val Val Ile Leu Cys  
20 25 30

Pro Lys Leu Leu Ile Asn Phe Tyr Leu Gln Ile Glu Lys Glu Gly Pro  
35 40 45

Cys Lys Glu Asn Gly Lys  
50



<210> 236  
 <211> 672  
 <212> PRT  
 <213> Homo sapiens

<400> 236

Met Gly Val Gly Arg Leu Asp Met Tyr Val Leu His Pro Pro Ser Ala  
 1 5 10 15

Gly Ala Glu Arg Thr Leu Ala Ser Val Cys Ala Leu Leu Val Trp His  
 20 25 30

Pro Ala Gly Pro Gly Glu Lys Val Val Arg Val Leu Phe Pro Gly Cys  
 35 40 45

Thr Pro Pro Ala Cys Leu Leu Asp Gly Leu Val Arg Leu Gln His Leu  
 50 55 60

Arg Phe Leu Arg Glu Pro Val Val Thr Pro Gln Asp Leu Glu Gly Pro  
 65 70 75 80

Gly Arg Ala Glu Ser Lys Glu Ser Val Gly Ser Arg Asp Ser Ser Lys  
 85 90 95

Arg Glu Gly Leu Leu Ala Thr His Pro Arg Pro Gly Gln Glu Arg Pro  
 100 105 110

Gly Val Ala Arg Lys Glu Pro Ala Arg Ala Glu Ala Pro Arg Lys Thr  
 115 120 125

Glu Lys Glu Ala Lys Ala Pro Arg Glu Leu Lys Lys Asp Pro Lys Pro  
 130 135 140

Ser Val Ser Arg Thr Gln Pro Arg Glu Val Arg Arg Ala Ala Ser Ser

145		150		155		160									
Val	Pro	Asp	Leu	Lys	Lys	Thr	Asp	Ala	Gln	Ala	Ala	Pro	Lys	Pro	Arg
			165						170					175	
Lys	Ala	Pro	Ser	Thr	Ser	His	Ser	Gly	Phe	Pro	Pro	Val	Ala	Asp	Gly
			180					185					190		
Pro	Arg	Ser	Pro	Pro	Ser	Leu	Arg	Cys	Gly	Glu	Ala	Ser	Pro	Pro	Ser
		195					200					205			
Ala	Ala	Cys	Gly	Ser	Pro	Ala	Ser	Gln	Leu	Val	Ala	Thr	Pro	Ser	Leu
	210					215					220				
Glu	Leu	Gly	Pro	Ile	Pro	Ala	Gly	Glu	Glu	Lys	Ala	Leu	Glu	Leu	Pro
225					230					235					240
Leu	Ala	Ala	Ser	Ser	Ile	Pro	Arg	Pro	Arg	Thr	Pro	Ser	Pro	Glu	Ser
			245						250					255	
His	Arg	Ser	Pro	Ala	Glu	Gly	Ser	Glu	Arg	Leu	Ser	Leu	Ser	Pro	Leu
			260					265					270		
Arg	Gly	Gly	Glu	Ala	Gly	Pro	Asp	Ala	Ser	Pro	Thr	Val	Thr	Thr	Pro
		275					280					285			
Thr	Val	Thr	Thr	Pro	Ser	Leu	Pro	Ala	Glu	Val	Gly	Ser	Pro	His	Ser
	290					295					300				
Thr	Glu	Val	Asp	Glu	Ser	Leu	Ser	Val	Ser	Phe	Glu	Gln	Val	Leu	Pro
305					310					315					320
Pro	Ser	Ala	Pro	Thr	Ser	Glu	Ala	Gly	Leu	Ser	Leu	Pro	Leu	Arg	Gly
				325					330					335	

Pro Arg Ala Arg Arg Ser Ala Ser Pro His Asp Val Asp Leu Cys Leu  
340 345 350

Val Ser Pro Cys Glu Phe Glu His Arg Lys Ala Val Pro Met Ala Pro  
355 360 365

Ala Pro Ala Ser Pro Gly Ser Ser Asp Asp Ser Ser Ala Arg Ser Gln  
370 375 380

Glu Arg Ala Gly Gly Leu Gly Ala Glu Glu Thr Pro Pro Thr Ser Val  
385 390 395 400

Ser Glu Ser Leu Pro Thr Leu Ser Asp Ser Asp Pro Val Pro Leu Ala  
405 410 415

Pro Gly Ala Ala Asp Ser Asp Glu Asp Thr Glu Gly Phe Gly Val Pro  
420 425 430

Arg His Asp Pro Leu Pro Asp Pro Leu Lys Val Pro Pro Pro Leu Pro  
435 440 445

Asp Pro Ser Ser Ile Cys Met Val Asp Pro Glu Met Leu Pro Pro Lys  
450 455 460

Thr Ala Arg Gln Thr Glu Asp Val Ser Arg Thr Arg Lys Pro Leu Ala  
465 470 475 480

Arg Pro Asp Ser Arg Ala Ala Ala Pro Lys Ala Thr Pro Val Ala Ala  
485 490 495

Ala Lys Thr Lys Gly Leu Ala Gly Gly Asp Arg Ala Ser Arg Pro Leu  
500 505 510

Ser Ala Arg Ser Glu Pro Ser Glu Lys Gly Gly Arg Ala Pro Leu Ser

515

520

525

Arg Lys Ser Ser Thr Pro Lys Thr Ala Thr Arg Gly Pro Ser Gly Ser  
 530 535 540

Ala Ser Ser Arg Pro Gly Val Ser Ala Thr Pro Pro Lys Ser Pro Val  
 545 550 555 560

Tyr Leu Asp Leu Ala Tyr Leu Pro Ser Gly Ser Ser Ala His Leu Val  
 565 570 575

Asp Glu Glu Phe Phe Gln Arg Val Arg Ala Leu Cys Tyr Val Ile Ser  
 580 585 590

Gly Gln Asp Gln Arg Lys Glu Glu Gly Met Arg Ala Val Leu Asp Ala  
 595 600 605

Leu Leu Ala Ser Lys Gln His Trp Asp Arg Asp Leu Gln Val Thr Leu  
 610 615 620

Ile Pro Thr Phe Asp Ser Val Ala Met His Thr Trp Tyr Ala Glu Thr  
 625 630 635 640

His Ala Arg His Gln Ala Leu Gly Ile Thr Val Leu Gly Ser Asp Ser  
 645 650 655

Met Val Ser Met Gln Asp Asp Ala Phe Pro Ala Cys Lys Val Glu Phe  
 660 665 670

<210> 237

<211> 222

<212> PRT

<213> Homo sapiens

<400> 237

Met Asn Ser Asn Val Glu Asn Leu Pro Pro His Ile Ile Arg Leu Val  
 1 5 10 15

Tyr Lys Glu Val Thr Thr Leu Thr Ala Asp Pro Pro Asp Gly Ile Lys  
 20 25 30

Val Phe Pro Asn Glu Glu Asp Leu Thr Asp Leu Gln Val Thr Ile Glu  
 35 40 45

Gly Pro Glu Gly Thr Pro Tyr Ala Gly Gly Leu Phe Arg Met Lys Leu  
 50 55 60

Leu Leu Gly Lys Asp Phe Pro Ala Ser Pro Pro Lys Gly Tyr Phe Leu  
 65 70 75 80

Thr Lys Ile Phe His Pro Asn Val Gly Ala Asn Gly Glu Ile Cys Val  
 85 90 95

Asn Val Leu Lys Arg Asp Trp Thr Ala Glu Leu Gly Ile Arg His Val  
 100 105 110

Leu Leu Thr Ile Lys Cys Leu Leu Ile His Pro Asn Pro Glu Ser Ala  
 115 120 125

Leu Asn Glu Glu Ala Gly Arg Leu Leu Leu Glu Asn Tyr Glu Glu Tyr  
 130 135 140

Ala Ala Arg Ala Arg Leu Leu Thr Glu Ile His Gly Gly Ala Gly Gly  
 145 150 155 160

Pro Ser Gly Arg Ala Glu Ala Gly Arg Ala Leu Ala Ser Gly Thr Glu  
 165 170 175

Ala Ser Ser Thr Asp Pro Gly Ala Pro Gly Gly Pro Gly Gly Ala Glu  
 180 185 190

Gly Thr Met Ala Lys Lys His Ala Gly Glu Arg Asp Lys Lys Leu Ala  
 195 200 205

Ala Lys Lys Lys Thr Asp Lys Lys Arg Ala Leu Arg Arg Leu  
 210 215 220

<210> 238

<211> 245

<212> PRT

<213> Homo sapiens

<400> 238

Met Ala Val Arg Ala Ser Phe Glu Asn Asn Cys Glu Ile Gly Cys Phe  
 1 5 10 15

Ala Lys Leu Thr Asn Thr Tyr Cys Leu Val Ala Ile Gly Gly Ser Glu  
 20 25 30

Asn Phe Tyr Ser Val Phe Glu Gly Glu Leu Ser Asp Thr Ile Pro Val  
 35 40 45

Val His Ala Ser Ile Ala Gly Cys Arg Ile Ile Gly Arg Met Cys Val  
 50 55 60

Gly Asn Arg His Gly Leu Leu Val Pro Asn Asn Thr Thr Asp Gln Glu  
 65 70 75 80

Leu Gln His Ile Arg Asn Ser Leu Pro Asp Thr Val Gln Ile Arg Arg  
 85 90 95

Val Glu Glu Arg Leu Ser Ala Leu Gly Asn Val Thr Thr Cys Asn Asp  
 100 105 110

Tyr Val Ala Leu Val His Pro Asp Leu Asp Arg Glu Thr Glu Glu Ile

115

120

125

Leu Ala Asp Val Leu Lys Val Glu Val Phe Arg Gln Thr Val Ala Asp  
 130 135 140

Gln Val Leu Val Gly Ser Tyr Cys Val Phe Ser Asn Gln Gly Gly Leu  
 145 150 155 160

Val His Pro Lys Thr Ser Ile Glu Asp Gln Asp Glu Leu Ser Ser Leu  
 165 170 175

Leu Gln Val Pro Leu Val Ala Gly Thr Val Asn Arg Gly Ser Glu Val  
 180 185 190

Ile Ala Ala Gly Met Val Val Asn Asp Trp Cys Ala Phe Cys Gly Leu  
 195 200 205

Asp Thr Thr Ser Thr Glu Leu Ser Val Val Glu Ser Val Phe Lys Leu  
 210 215 220

Asn Glu Ala Gln Pro Ser Thr Ile Ala Thr Ser Met Arg Asp Ser Leu  
 225 230 235 240

Ile Asp Ser Leu Thr  
 245

<210> 239

<211> 117

<212> PRT

<213> Homo sapiens

<400> 239

Met Glu Ser Gly Ala Lys Gly Cys Glu Val Val Val Ser Gly Lys Leu  
 1 5 10 15

Arg Gly Gln Arg Ala Lys Ser Met Lys Phe Val Asp Gly Leu Met Ile  
20 25 30

His Ser Gly Asp Pro Val Asn Tyr Tyr Val Asp Thr Ala Val Arg His  
35 40 45

Val Leu Leu Arg Gln Gly Val Leu Gly Ile Lys Val Lys Ile Met Leu  
50 55 60

Pro Trp Asp Pro Thr Gly Lys Ile Gly Pro Lys Lys Pro Leu Pro Asp  
65 70 75 80

His Val Ser Ile Val Glu Pro Lys Asp Glu Ile Leu Pro Thr Thr Pro  
85 90 95

Ile Ser Glu Gln Lys Gly Gly Lys Pro Glu Pro Pro Ala Met Pro Gln  
100 105 110

Pro Val Pro Thr Ala  
115

<210> 240  
<211> 444  
<212> PRT  
<213> Homo sapiens

<400> 240

Met Arg Glu Ile Val His Ile Gln Ala Gly Gln Cys Gly Asn Gln Ile  
1 5 10 15

Gly Ala Lys Phe Trp Glu Val Ile Ser Asp Glu His Gly Ile Asp Pro  
20 25 30

Thr Gly Thr Tyr His Gly Asp Ser Asp Leu Gln Leu Asp Arg Ile Ser  
35 40 45



Val Tyr Tyr Asn Glu Ala Thr Gly Gly Lys Tyr Val Pro Arg Ala Ile  
50 55 60

Leu Val Asp Leu Glu Pro Gly Thr Met Asp Ser Val Arg Ser Gly Pro  
65 70 75 80

Phe Gly Gln Ile Phe Arg Pro Asp Asn Phe Val Phe Gly Gln Ser Gly  
85 90 95

Ala Gly Asn Asn Trp Ala Lys Gly His Tyr Thr Glu Gly Ala Glu Leu  
100 105 110

Val Asp Ser Val Leu Asp Val Val Arg Lys Glu Ala Glu Ser Cys Asp  
115 120 125

Cys Leu Gln Gly Phe Gln Leu Thr His Ser Leu Gly Gly Gly Thr Gly  
130 135 140

Ser Gly Met Gly Thr Leu Leu Ile Ser Lys Ile Arg Glu Glu Tyr Pro  
145 150 155 160

Asp Arg Ile Met Asn Thr Phe Ser Val Val Pro Ser Pro Lys Val Ser  
165 170 175

Asp Thr Val Val Glu Pro Tyr Asn Ala Thr Leu Ser Val His Gln Leu  
180 185 190

Val Glu Asn Thr Asp Glu Thr Tyr Cys Ile Asp Asn Glu Ala Leu Tyr  
195 200 205

Asp Ile Cys Phe Arg Thr Leu Lys Leu Thr Thr Pro Thr Tyr Gly Asp  
210 215 220

Leu Asn His Leu Val Ser Ala Thr Met Ser Gly Val Thr Thr Cys Leu

225		230		235		240
Arg Phe Pro Gly Gln Leu Asn Ala Asp Leu Arg Lys Leu Ala Val Asn						
	245			250		255
Met Val Pro Phe Pro Arg Leu His Phe Phe Met Pro Gly Phe Ala Pro						
	260			265		270
Leu Thr Ser Arg Gly Ser Gln Gln Tyr Arg Ala Leu Thr Val Pro Glu						
	275			280		285
Leu Thr Gln Gln Val Phe Asp Ala Lys Asn Met Met Ala Ala Cys Asp						
	290			295		300
Pro Arg His Gly Arg Tyr Leu Thr Val Ala Ala Val Phe Arg Gly Arg						
305		310		315		320
Met Ser Met Lys Glu Val Asp Glu Gln Met Leu Asn Val Gln Asn Lys						
	325			330		335
Asn Ser Ser Tyr Phe Val Glu Trp Ile Pro Asn Asn Val Lys Thr Ala						
	340			345		350
Val Cys Asp Ile Pro Pro Arg Gly Leu Lys Met Ala Val Thr Phe Ile						
	355			360		365
Gly Asn Ser Thr Ala Ile Gln Glu Leu Phe Lys Arg Ile Ser Glu Gln						
	370			375		380
Phe Thr Ala Met Phe Arg Arg Lys Ala Phe Leu His Trp Tyr Thr Gly						
385		390		395		400
Glu Gly Met Asp Glu Met Glu Phe Thr Glu Ala Glu Ser Asn Met Asn						
	405			410		415

Asp Leu Val Ser Glu Tyr Gln Gln Tyr Gln Asp Ala Thr Ala Glu Glu  
420 425 430

Glu Glu Asp Phe Gly Glu Glu Ala Glu Glu Glu Ala  
435 440

<210> 241  
<211> 92  
<212> PRT  
<213> Homo sapiens

<400> 241

Met Asp Glu Gln Ile Arg Leu Met Asp Gln Asn Leu Lys Cys Leu Ser  
1 5 10 15

Ala Ala Glu Glu Lys Tyr Ser Gln Lys Glu Asp Lys Tyr Glu Glu Glu  
20 25 30

Ile Lys Ile Leu Thr Asp Lys Leu Lys Glu Ala Glu Thr Arg Ala Glu  
35 40 45

Phe Ala Glu Arg Ser Val Ala Lys Leu Glu Lys Thr Ile Asp Asp Leu  
50 55 60

Glu Asp Lys Leu Lys Cys Thr Lys Glu Glu His Leu Cys Thr Gln Arg  
65 70 75 80

Met Leu Asp Gln Thr Leu Leu Asp Leu Asn Glu Met  
85 90

<210> 242  
<211> 453  
<212> PRT  
<213> Homo sapiens

<400> 242

Met Val Met Gly Ile Thr Asp Val Asp Asp Lys Ile Ile Lys Arg Ala  
 1 5 10 15

Asn Glu Met Asn Ile Ser Pro Ala Ser Leu Ala Ser Leu Tyr Glu Glu  
 20 25 30

Asp Phe Lys Gln Asp Met Ala Ala Leu Lys Val Leu Pro Pro Thr Val  
 35 40 45

Tyr Leu Arg Val Thr Glu Asn Ile Pro Gln Ile Ile Ser Phe Ile Glu  
 50 55 60

Gly Ile Ile Ala Ser Trp Glu Arg Leu Phe Asn Gly Lys Arg Gln Cys  
 65 70 75 80

Leu Leu Arg Ser Glu Ser Leu Glu Glu Thr Lys Tyr Gly Lys Ile Gly  
 85 90 95

Arg Arg Gly Pro Trp Ser Ser Pro Glu Thr Ser Gly Leu Leu Thr Ser  
 100 105 110

Arg His Ala Asn Asp Phe Ala Leu Trp Lys Ala Ala Lys Pro Gln Glu  
 115 120 125

Val Phe Trp Ala Ser Pro Trp Gly Pro Gly Arg Pro Gly Trp His Ile  
 130 135 140

Glu Cys Ser Ala Ile Ala Ser Met Val Phe Gly Ser Gln Leu Asp Ile  
 145 150 155 160

His Ser Gly Gly Ile Asp Leu Ala Phe Pro His His Glu Asn Glu Ile  
 165 170 175

Ala Gln Cys Glu Val Phe His Gln Cys Glu Gln Trp Gly Asn Tyr Phe

180

185

190

Leu His Ser Gly His Leu His Ala Lys Gly Lys Glu Glu Lys Met Ser  
 195 200 205

Lys Ser Leu Lys Asn Tyr Ile Thr Ile Lys Asp Phe Leu Lys Thr Phe  
 210 215 220

Ser Pro Asp Val Phe Arg Phe Phe Cys Leu Arg Ser Ser Tyr Arg Ser  
 225 230 235 240

Ala Ile Asp Tyr Ser Asp Ser Ala Met Leu Gln Ala Gln Gln Leu Leu  
 245 250 255

Leu Gly Leu Gly Ser Phe Leu Glu Asp Ala Arg Ala Tyr Met Lys Gly  
 260 265 270

Gln Leu Ala Cys Gly Ser Val Arg Glu Ala Met Leu Trp Glu Arg Leu  
 275 280 285

Ser Ser Thr Lys Arg Ala Val Lys Ala Ala Leu Ala Asp Asp Phe Asp  
 290 295 300

Thr Pro Arg Val Val Asp Ala Ile Leu Gly Leu Ala His His Gly Asn  
 305 310 315 320

Gly Gln Leu Arg Ala Ser Leu Lys Glu Pro Glu Gly Pro Arg Ser Pro  
 325 330 335

Ala Val Phe Gly Ala Ile Ile Ser Tyr Phe Glu Gln Phe Phe Glu Thr  
 340 345 350

Val Gly Ile Ser Leu Ala Asn Gln Gln Tyr Val Ser Gly Asp Gly Ser  
 355 360 365

Glu Ala Thr Leu His Gly Val Val Asp Glu Leu Val Arg Phe Arg Gln  
370 375 380

Lys Val Arg Gln Phe Ala Leu Ala Met Pro Glu Ala Thr Gly Asp Ala  
385 390 395 400

Arg Arg Gln Gln Leu Leu Glu Arg Gln Pro Leu Leu Glu Ala Cys Asp  
405 410 415

Thr Leu Arg Arg Gly Leu Thr Ala His Gly Ile Asn Ile Lys Asp Arg  
420 425 430

Ser Ser Thr Thr Ser Thr Trp Glu Leu Leu Asp Gln Arg Thr Lys Asp  
435 440 445

Gln Lys Ser Ala Gly  
450

<210> 243  
<211> 209  
<212> PRT  
<213> Homo sapiens

<400> 243

Met Lys Glu Leu Ala Glu Glu Glu Pro His Leu Val Glu Gln Phe Gln  
1 5 10 15

Lys Leu Ser Glu Ala Ala Gly Arg Val Gly Ser Asp Met Thr Ser Gln  
20 25 30

Gln Glu Phe Thr Ser Cys Leu Lys Glu Thr Leu Ser Gly Leu Ala Lys  
35 40 45

Asn Ala Thr Asp Leu Gln Asn Ser Ser Met Ser Glu Glu Glu Leu Thr  
50 55 60

Lys Ala Met Glu Gly Leu Gly Met Asp Glu Gly Asp Gly Glu Gly Asn  
65 70 75 80

Ile Leu Pro Ile Met Gln Ser Ile Met Gln Asn Leu Leu Ser Lys Asp  
85 90 95

Val Leu Tyr Pro Ser Leu Lys Glu Ile Thr Glu Lys Tyr Pro Glu Trp  
100 105 110

Leu Gln Ser His Arg Glu Ser Leu Pro Pro Glu Gln Phe Glu Lys Tyr  
115 120 125

Gln Glu Gln His Ser Val Met Cys Lys Ile Cys Glu Gln Phe Glu Ala  
130 135 140

Glu Thr Pro Thr Asp Ser Glu Thr Thr Gln Lys Ala Arg Phe Glu Met  
145 150 155 160

Val Leu Asp Leu Met Gln Gln Leu Gln Asp Leu Gly His Pro Pro Lys  
165 170 175

Glu Leu Ala Gly Glu Met Pro Pro Gly Leu Asn Phe Asp Leu Asp Ala  
180 185 190

Leu Asn Leu Ser Gly Pro Pro Gly Ala Ser Gly Glu Gln Cys Leu Ile  
195 200 205

Met

<210> 244  
<211> 354  
<212> PRT  
<213> Homo sapiens

<400> 244

Met Arg Arg Leu Met Ser Ser Arg Asp Trp Pro Arg Thr Arg Thr Gly  
1 5 10 15

Thr Gly Ile Leu Ser Ser Gln Pro Glu Glu Asn Pro Tyr Trp Trp Asn  
20 25 30

Ala Asn Met Val Phe Ile Pro Tyr Cys Ser Ser Asp Val Trp Ser Gly  
35 40 45

Ala Ser Ser Lys Ser Glu Lys Asn Glu Tyr Ala Phe Met Gly Ala Leu  
50 55 60

Ile Ile Gln Glu Val Val Arg Glu Leu Leu Gly Arg Gly Leu Ser Gly  
65 70 75 80

Ala Lys Val Leu Leu Leu Ala Gly Ser Ser Ala Gly Gly Thr Gly Val  
85 90 95

Leu Leu Asn Val Asp Arg Val Ala Glu Gln Leu Glu Lys Leu Gly Tyr  
100 105 110

Pro Ala Ile Gln Val Arg Gly Leu Ala Asp Ser Gly Trp Phe Leu Asp  
115 120 125

Asn Lys Gln Tyr Arg His Thr Asp Cys Val Asp Thr Ile Thr Cys Ala  
130 135 140

Pro Thr Glu Ala Ile Arg Arg Gly Ile Arg Tyr Trp Asn Gly Val Val  
145 150 155 160

Pro Glu Arg Cys Arg Arg Gln Phe Gln Glu Gly Glu Glu Trp Asn Cys  
165 170 175



Phe Phe Gly Tyr Lys Val Tyr Pro Thr Leu Arg Cys Pro Val Phe Val  
180 185 190

Val Gln Trp Leu Phe Asp Glu Ala Gln Leu Thr Val Asp Asn Val His  
195 200 205

Leu Thr Gly Gln Pro Val Gln Glu Gly Leu Arg Leu Tyr Ile Gln Asn  
210 215 220

Leu Gly Arg Glu Leu Arg His Thr Leu Lys Asp Val Pro Ala Ser Phe  
225 230 235 240

Ala Pro Ala Cys Leu Ser His Glu Ile Ile Ile Arg Ser His Trp Thr  
245 250 255

Asp Val Gln Val Lys Gly Thr Ser Leu Pro Arg Ala Leu His Cys Trp  
260 265 270

Asp Arg Ser Leu His Asp Ser His Lys Ala Ser Lys Thr Pro Leu Lys  
275 280 285

Gly Cys Pro Val His Leu Val Asp Ser Cys Pro Trp Pro His Cys Asn  
290 295 300

Pro Ser Cys Pro Thr Val Arg Asp Gln Phe Thr Gly Gln Glu Met Asn  
305 310 315 320

Val Ala Gln Phe Leu Met His Met Gly Phe Asp Met Gln Thr Val Ala  
325 330 335

Gln Pro Gln Gly Leu Glu Pro Ser Glu Leu Leu Gly Met Leu Ser Asn  
340 345 350

Gly Ser

<210> 245  
<211> 295  
<212> PRT  
<213> Homo sapiens

<400> 245

Met Glu Leu Ile Gln Asp Thr Ser Arg Pro Pro Leu Glu Tyr Val Lys  
1 5 10 15

Gly Val Pro Leu Ile Lys Tyr Phe Ala Glu Ala Leu Gly Pro Leu Gln  
20 25 30

Ser Phe Gln Ala Arg Pro Asp Asp Leu Leu Ile Ser Thr Tyr Pro Lys  
35 40 45

Ser Gly Thr Thr Trp Val Ser Gln Ile Leu Asp Met Ile Tyr Gln Gly  
50 55 60

Gly Asp Leu Glu Lys Cys His Arg Ala Pro Ile Phe Met Arg Val Pro  
65 70 75 80

Phe Leu Glu Phe Lys Ala Pro Gly Ile Pro Ser Gly Met Glu Thr Leu  
85 90 95

Lys Asp Thr Pro Ala Pro Arg Leu Leu Lys Thr His Leu Pro Leu Ala  
100 105 110

Leu Leu Pro Gln Thr Leu Leu Asp Gln Lys Val Lys Val Val Tyr Val  
115 120 125

Ala Arg Asn Ala Lys Asp Val Ala Val Ser Tyr Tyr His Phe Tyr His  
130 135 140

Met Ala Lys Val His Pro Glu Pro Gly Thr Trp Asp Ser Phe Leu Glu  
 145 150 155 160

Lys Phe Met Val Gly Glu Val Ser Tyr Gly Ser Trp Tyr Gln His Val  
 165 170 175

Gln Glu Trp Trp Glu Leu Ser Arg Thr His Pro Val Leu Tyr Leu Phe  
 180 185 190

Tyr Glu Asp Met Lys Glu Asn Pro Lys Arg Glu Ile Gln Lys Ile Leu  
 195 200 205

Glu Phe Val Gly His Ser Leu Pro Glu Glu Thr Val Asp Phe Met Val  
 210 215 220

Gln His Thr Ser Phe Lys Glu Met Lys Lys Asn Pro Met Thr Asn Tyr  
 225 230 235 240

Thr Thr Val Pro Gln Glu Phe Met Asp His Ser Ile Ser Pro Phe Met  
 245 250 255

Arg Lys Gly Met Ala Gly Asp Trp Lys Thr Thr Phe Thr Val Ala Gln  
 260 265 270

Asn Glu Arg Phe Asp Ala Asp Tyr Ala Glu Lys Met Ala Gly Cys Ser  
 275 280 285

Leu Ser Phe Arg Ser Glu Leu  
 290 295

<210> 246

<211> 439

<212> PRT

<213> Homo sapiens

<400> 246

Met Glu Pro Ser Thr Ala Ala Arg Ala Trp Ala Leu Phe Trp Leu Leu  
1 5 10 15

Leu Pro Leu Leu Gly Ala Val Cys Ala Ser Gly Pro Arg Thr Leu Val  
20 25 30

Leu Leu Asp Asn Leu Asn Val Arg Glu Thr His Ser Leu Phe Phe Arg  
35 40 45

Ser Leu Lys Asp Arg Gly Phe Glu Leu Thr Phe Lys Thr Ala Asp Asp  
50 55 60

Pro Ser Leu Ser Leu Ile Lys Tyr Gly Glu Phe Leu Tyr Asp Asn Leu  
65 70 75 80

Ile Ile Phe Ser Pro Ser Val Glu Asp Phe Gly Gly Asn Ile Asn Val  
85 90 95

Glu Thr Ile Ser Ala Phe Ile Asp Gly Gly Gly Ser Val Leu Val Ala  
100 105 110

Ala Ser Ser Asp Ile Gly Asp Pro Leu Arg Glu Leu Gly Ser Glu Cys  
115 120 125

Gly Ile Glu Phe Asp Glu Glu Lys Thr Ala Val Ile Asp His His Asn  
130 135 140

Tyr Asp Ile Ser Asp Leu Gly Gln His Thr Leu Ile Val Ala Asp Thr  
145 150 155 160

Glu Asn Leu Leu Lys Ala Pro Thr Ile Val Gly Lys Ser Ser Leu Asn  
165 170 175

Pro Ile Leu Phe Arg Gly Val Gly Met Val Ala Asp Pro Asp Asn Pro

180

185

190

Leu Val Leu Asp Ile Leu Thr Gly Ser Ser Thr Ser Tyr Ser Phe Phe  
 195 200 205

Pro Asp Lys Pro Ile Thr Gln Tyr Pro His Ala Val Gly Lys Asn Thr  
 210 215 220

Leu Leu Ile Ala Gly Leu Gln Ala Arg Asn Asn Ala Arg Val Ile Phe  
 225 230 235 240

Ser Gly Ser Leu Asp Phe Phe Ser Asp Ser Phe Phe Asn Ser Ala Val  
 245 250 255

Gln Lys Ala Ala Pro Gly Ser Gln Arg Tyr Ser Gln Thr Gly Asn Tyr  
 260 265 270

Glu Leu Ala Val Ala Leu Ser Arg Trp Val Phe Lys Glu Glu Gly Val  
 275 280 285

Leu Arg Val Gly Pro Val Ser His His Arg Val Gly Glu Thr Ala Pro  
 290 295 300

Pro Asn Ala Tyr Thr Val Thr Asp Leu Val Glu Tyr Ser Ile Val Ile  
 305 310 315 320

Gln Gln Leu Ser Asn Gly Lys Trp Val Pro Phe Asp Gly Asp Asp Ile  
 325 330 335

Gln Leu Glu Phe Val Arg Ile Asp Pro Phe Val Arg Thr Phe Leu Lys  
 340 345 350

Lys Lys Gly Gly Lys Tyr Ser Val Gln Phe Lys Leu Pro Asp Val Tyr  
 355 360 365

Gly Val Phe Gln Phe Lys Val Asp Tyr Asn Arg Leu Gly Tyr Thr His  
370 375 380

Leu Tyr Ser Ser Thr Gln Val Ser Val Arg Pro Leu Gln His Thr Gln  
385 390 395 400

Tyr Glu Arg Phe Ile Pro Ser Ala Tyr Pro Tyr Tyr Ala Ser Ala Phe  
405 410 415

Ser Met Met Leu Gly Leu Phe Ile Phe Ser Ile Val Phe Leu His Met  
420 425 430

Lys Glu Lys Glu Lys Ser Asp  
435

<210> 247  
<211> 56  
<212> PRT  
<213> Homo sapiens

<400> 247

Met Glu Thr Leu His Thr Trp Gly Ser Lys Val Leu Gly Tyr Ser Trp  
1 5 10 15

Ile Phe Arg Thr Ser Ala Tyr Pro Gln Val Ser Gln Ala Ser Gly Gly  
20 25 30

Glu Ala Ser Asp Pro Trp Pro Thr Cys Tyr Pro Pro Gln Gly Leu Asp  
35 40 45

Leu Ser Ser Arg Glu Gly Thr Glu  
50 55

<210> 248  
<211> 46

<212> PRT  
<213> Homo sapiens

<400> 248

Met Gly Phe Lys Gly Pro Gly Val Phe Leu Asp Leu Gln Asp Ile Cys  
1 5 10 15

Leu Pro Ser Gly Phe Pro Gly Leu Gly Trp Gly Gly Ile Arg Ser Leu  
20 25 30

Ala Asn Leu Leu Ser Thr Pro Gly Phe Arg Pro Leu Phe Pro  
35 40 45

<210> 249  
<211> 61  
<212> PRT  
<213> Homo sapiens

<400> 249

Ile Gly Thr Val Phe Leu Glu Gly Asn Leu Val Lys Cys Ile Lys Arg  
1 5 10 15

Leu Lys Asn Thr Asp Val Leu Cys Ala Gly Asn Ser Thr Ser Ser Asn  
20 25 30

Phe Ser Leu Lys Pro Tyr Gln Arg Cys Ile Gln Arg Ile Ile Tyr Lys  
35 40 45

Glu Gly Cys Leu Ile Met Ile Val Ile Ile Ile Asn Asn  
50 55 60

<210> 250  
<211> 73  
<212> PRT  
<213> Homo sapiens

<400> 250

Met Phe Asp Ser Pro Phe Tyr Glu Leu Asn Tyr Phe Ile Arg Val Gly  
1 5 10 15

Asn Phe Cys Phe Leu Ile Lys Trp Lys Leu Ala Phe Leu Thr Leu Phe  
20 25 30

Leu Leu Leu Phe Tyr Arg Asn Ala Phe Cys Trp Pro Gly Thr Val Ala  
35 40 45

His Pro Cys Asn Pro Ser Thr Val Gly Gly Arg Asp Gly Trp Ile Thr  
50 55 60

Arg Ser Gly Asp Arg Asp His Pro Gly  
65 70

<210> 251  
<211> 43  
<212> PRT  
<213> Homo sapiens

<400> 251

Met Leu Phe Val Gly Arg Ala Gln Leu Leu Ile His Val Ile Pro Ala  
1 5 10 15

Leu Trp Glu Ala Glu Thr Gly Gly Ser Gln Gly Gln Glu Ile Glu Thr  
20 25 30

Ile Leu Ala Asn Ala Leu Lys Leu Arg Leu Cys  
35 40

<210> 252  
<211> 30  
<212> PRT  
<213> Homo sapiens

<400> 252



Met Tyr Ile Phe Phe Cys Val Leu Phe Leu Leu Leu Leu Leu Phe Glu  
 1 5 10 15

Thr Gly Ser Cys Ser Val Ala Gln Ala Gly Val Gln Trp His  
 20 25 30

<210> 253

<211> 87

<212> PRT

<213> Homo sapiens

<400> 253

Met Asn Cys Asn Thr Gln Ser Gln Thr Arg Ala Leu Pro Arg Pro Leu  
 1 5 10 15

Gly Gly Cys Thr Pro Ser Ser Ser Ala Arg Leu Arg Ser Leu Arg Pro  
 20 25 30

Arg Leu Lys Glu Gly Val Ala Gly Asn Pro Gly Asn Leu Ser Glu Val  
 35 40 45

Thr Pro His Pro Tyr Thr Pro Ser Val His Pro Arg Leu Phe Leu Leu  
 50 55 60

Leu Phe Gly Phe Trp Lys Gly Ile His Leu Gln Ala Ala His Pro Gly  
 65 70 75 80

Gly Ala Cys Phe Leu Lys Pro  
 85

<210> 254

<211> 211

<212> PRT

<213> Homo sapiens

<400> 254

Met Ala Pro Ser Arg Asn Gly Met Val Leu Lys Pro His Phe His Lys  
1 5 10 15

Asp Trp Gln Arg Arg Val Ala Thr Trp Phe Asn Gln Pro Ala Arg Lys  
20 25 30

Ile Arg Arg Arg Lys Ala Arg Gln Ala Lys Ala Arg Arg Ile Ala Pro  
35 40 45

Arg Pro Ala Ser Gly Pro Ile Arg Pro Ile Val Arg Cys Pro Thr Val  
50 55 60

Arg Tyr His Thr Lys Val Arg Ala Gly Arg Gly Phe Ser Leu Glu Glu  
65 70 75 80

Leu Arg Val Ala Gly Ile His Lys Lys Val Ala Arg Thr Ile Gly Ile  
85 90 95

Ser Val Asp Pro Arg Arg Arg Asn Lys Ser Thr Glu Ser Leu Gln Ala  
100 105 110

Asn Val Gln Arg Leu Lys Glu Tyr Arg Ser Lys Leu Ile Leu Phe Pro  
115 120 125

Arg Lys Pro Ser Ala Pro Lys Lys Gly Asp Ser Ser Ala Glu Glu Leu  
130 135 140

Lys Leu Ala Thr Gln Leu Thr Gly Pro Val Met Pro Val Arg Asn Val  
145 150 155 160

Tyr Lys Lys Glu Lys Ala Arg Val Ile Thr Glu Glu Glu Lys Asn Phe  
165 170 175

Lys Ala Phe Ala Ser Leu Arg Met Ala Arg Ala Asn Ala Arg Leu Phe

180

185

190

Gly Ile Arg Ala Lys Arg Ala Lys Glu Ala Ala Glu Gln Asp Val Glu  
 195 200 205

Lys Lys Lys  
 210

<210> 255  
 <211> 417  
 <212> PRT  
 <213> Homo sapiens

<400> 255

Met Ser Leu Ser Asn Lys Leu Thr Leu Asp Lys Leu Asp Val Lys Gly  
 1 5 10 15

Lys Arg Val Val Met Arg Val Asp Phe Asn Val Pro Met Lys Asn Asn  
 20 25 30

Gln Ile Thr Asn Asn Gln Arg Ile Lys Ala Ala Val Pro Ser Ile Lys  
 35 40 45

Phe Cys Leu Asp Asn Gly Ala Lys Ser Val Val Leu Met Ser His Leu  
 50 55 60

Gly Arg Pro Asp Gly Val Pro Met Pro Asp Lys Tyr Ser Leu Glu Pro  
 65 70 75 80

Val Ala Val Glu Leu Lys Ser Leu Leu Gly Lys Asp Val Leu Phe Leu  
 85 90 95

Lys Asp Cys Val Gly Pro Glu Val Glu Lys Ala Cys Ala Asn Pro Ala  
 100 105 110

Ala Gly Ser Val Ile Leu Leu Glu Asn Leu Arg Phe His Val Glu Glu  
115 120 125

Glu Gly Lys Gly Lys Asp Ala Ser Gly Asn Lys Val Lys Ala Glu Pro  
130 135 140

Ala Lys Ile Glu Ala Phe Arg Ala Ser Leu Ser Lys Leu Gly Asp Val  
145 150 155 160

Tyr Val Asn Asp Ala Phe Gly Thr Ala His Arg Ala His Ser Ser Met  
165 170 175

Val Gly Val Asn Leu Pro Gln Lys Ala Gly Gly Phe Leu Met Lys Lys  
180 185 190

Glu Leu Asn Tyr Phe Ala Lys Ala Leu Glu Ser Pro Glu Arg Pro Phe  
195 200 205

Leu Ala Ile Leu Gly Gly Ala Lys Val Ala Asp Lys Ile Gln Leu Ile  
210 215 220

Asn Asn Met Leu Asp Lys Val Asn Glu Met Ile Ile Gly Gly Gly Met  
225 230 235 240

Ala Phe Thr Phe Leu Lys Val Leu Asn Asn Met Glu Ile Gly Thr Ser  
245 250 255

Leu Phe Asp Glu Glu Gly Ala Lys Ile Val Lys Asp Leu Met Ser Lys  
260 265 270

Ala Glu Lys Asn Gly Val Lys Ile Thr Leu Pro Val Asp Phe Val Thr  
275 280 285

Ala Asp Lys Phe Asp Glu Asn Ala Lys Thr Gly Gln Ala Thr Val Ala  
290 295 300

Ser Gly Ile Pro Ala Gly Trp Met Gly Leu Asp Cys Gly Pro Glu Ser  
305 310 315 320

Ser Lys Lys Tyr Ala Glu Ala Val Thr Arg Ala Lys Gln Ile Val Trp  
325 330 335

Asn Gly Pro Val Gly Val Phe Glu Trp Glu Ala Phe Ala Arg Gly Thr  
340 345 350

Lys Ala Leu Met Asp Glu Val Val Lys Ala Thr Ser Arg Gly Cys Ile  
355 360 365

Thr Ile Ile Gly Gly Gly Asp Thr Ala Thr Cys Cys Ala Lys Trp Asn  
370 375 380

Thr Glu Asp Lys Val Ser His Val Ser Thr Gly Gly Gly Ala Ser Leu  
385 390 395 400

Glu Leu Leu Glu Gly Lys Val Leu Pro Gly Val Asp Ala Leu Ser Asn  
405 410 415

Ile

<210> 256  
<211> 568  
<212> PRT  
<213> Homo sapiens

<400> 256

Met Val Leu Gly Pro Glu Gln Lys Met Ser Asp Asp Ser Val Ser Gly  
1 5 10 15

Asp His Gly Glu Ser Ala Ser Leu Gly Asn Ile Asn Pro Ala Tyr Ser

20

25

30

Asn Pro Ser Leu Ser Gln Ser Pro Gly Asp Ser Glu Glu Tyr Phe Ala  
 35 40 45

Thr Tyr Phe Asn Glu Lys Ile Ser Ile Pro Glu Glu Glu Tyr Ser Cys  
 50 55 60

Phe Ser Phe Arg Lys Leu Trp Ala Phe Thr Gly Pro Gly Phe Leu Met  
 65 70 75 80

Ser Ile Ala Tyr Leu Asp Pro Gly Asn Ile Glu Ser Asp Leu Gln Ser  
 85 90 95

Gly Ala Val Ala Gly Phe Lys Leu Leu Trp Ile Leu Leu Leu Ala Thr  
 100 105 110

Leu Val Gly Leu Leu Leu Gln Arg Leu Ala Ala Arg Leu Gly Val Val  
 115 120 125

Thr Gly Leu His Leu Ala Glu Val Cys His Arg Gln Tyr Pro Lys Val  
 130 135 140

Pro Arg Val Ile Leu Trp Leu Met Val Glu Leu Ala Ile Ile Gly Ser  
 145 150 155 160

Asp Met Gln Glu Val Ile Gly Ser Ala Ile Ala Ile Asn Leu Leu Ser  
 165 170 175

Val Gly Arg Ile Pro Leu Trp Gly Gly Val Leu Ile Thr Ile Ala Asp  
 180 185 190

Thr Phe Val Phe Leu Phe Leu Asp Lys Tyr Gly Leu Arg Lys Leu Glu  
 195 200 205

Ala Phe Phe Gly Phe Leu Ile Thr Ile Met Ala Leu Thr Phe Gly Tyr  
210 215 220

Glu Tyr Val Thr Val Lys Pro Ser Gln Ser Gln Val Leu Lys Gly Met  
225 230 235 240

Phe Val Pro Ser Cys Ser Gly Cys Arg Thr Pro Gln Ile Glu Gln Ala  
245 250 255

Val Gly Ile Val Gly Ala Val Ile Met Pro His Asn Met Tyr Leu His  
260 265 270

Ser Ala Leu Val Lys Ser Arg Gln Val Asn Arg Asn Asn Lys Gln Glu  
275 280 285

Val Arg Glu Ala Asn Lys Tyr Phe Phe Ile Glu Ser Cys Ile Ala Leu  
290 295 300

Phe Val Ser Phe Ile Ile Asn Val Phe Val Val Ser Val Phe Ala Glu  
305 310 315 320

Ala Phe Phe Gly Lys Thr Asn Glu Gln Val Val Glu Val Cys Thr Asn  
325 330 335

Thr Ser Ser Pro His Ala Gly Leu Phe Pro Lys Asp Asn Ser Thr Leu  
340 345 350

Ala Val Asp Ile Tyr Lys Gly Gly Val Val Leu Gly Cys Tyr Phe Gly  
355 360 365

Pro Ala Ala Leu Tyr Ile Trp Ala Val Gly Ile Leu Ala Ala Gly Gln  
370 375 380

Ser Ser Thr Met Thr Gly Thr Tyr Ser Gly Gln Phe Val Met Glu Gly

385		390		395		400									
Phe	Leu	Asn	Leu	Lys	Trp	Ser	Arg	Phe	Ala	Arg	Val	Val	Leu	Thr	Arg
			405						410					415	
Ser	Ile	Ala	Ile	Ile	Pro	Thr	Leu	Leu	Val	Ala	Val	Phe	Gln	Asp	Val
			420					425					430		
Glu	His	Leu	Thr	Gly	Met	Asn	Asp	Phe	Leu	Asn	Val	Leu	Gln	Ser	Leu
		435					440					445			
Gln	Leu	Pro	Phe	Ala	Leu	Ile	Pro	Ile	Leu	Thr	Phe	Thr	Ser	Leu	Arg
	450					455					460				
Pro	Val	Met	Ser	Asp	Phe	Ala	Asn	Gly	Leu	Gly	Trp	Arg	Ile	Ala	Gly
465					470					475					480
Gly	Ile	Leu	Val	Leu	Ile	Ile	Cys	Ser	Ile	Asn	Met	Tyr	Phe	Val	Val
			485						490					495	
Val	Tyr	Val	Arg	Asp	Leu	Gly	His	Val	Ala	Leu	Tyr	Val	Val	Ala	Ala
			500					505					510		
Val	Val	Ser	Val	Ala	Tyr	Leu	Gly	Phe	Val	Phe	Tyr	Leu	Gly	Trp	Gln
		515					520					525			
Cys	Leu	Ile	Ala	Leu	Gly	Met	Ser	Phe	Leu	Asp	Cys	Gly	His	Thr	Cys
	530					535					540				
His	Leu	Gly	Leu	Thr	Ala	Gln	Pro	Glu	Leu	Tyr	Leu	Leu	Asn	Thr	Met
545					550					555					560
Asp	Ala	Asp	Ser	Leu	Val	Ser	Arg								
				565											



<210> 257  
<211> 46  
<212> PRT  
<213> Homo sapiens

<400> 257

Met Leu Phe Ile His Ala Glu Val Ile Gln Phe Pro Pro Ser Tyr Arg  
1 5 10 15

Ser Ile Leu Ile His Pro Thr Leu Glu Met Gln His Leu Cys Gly Arg  
20 25 30

Leu Phe His Lys Pro Pro Arg Leu Leu Arg Leu Gly Arg Tyr  
35 40 45

<210> 258  
<211> 36  
<212> PRT  
<213> Homo sapiens

<400> 258

Met Ala Ser Leu Gln Phe Val Ile Ser Leu Pro Val Cys Ser Leu Lys  
1 5 10 15

Leu Ile Lys Arg Ser Gly Tyr Ile Glu Leu Leu Tyr Arg Cys Glu Gly  
20 25 30

Met Asp Lys Ser  
35

<210> 259  
<211> 898  
<212> PRT  
<213> Homo sapiens

<400> 259

Met Ser Val Thr Glu Glu Asp Leu Cys His His Met Lys Val Val Val  
 1 5 10 15

Arg Val Arg Pro Glu Asn Thr Lys Glu Lys Ala Ala Gly Phe His Lys  
 20 25 30

Val Val His Val Val Asp Lys His Ile Leu Val Phe Asp Pro Lys Gln  
 35 40 45

Glu Glu Val Ser Phe Phe His Gly Lys Lys Thr Thr Asn Gln Asn Val  
 50 55 60

Ile Lys Lys Gln Asn Lys Asp Leu Lys Phe Val Phe Asp Ala Val Phe  
 65 70 75 80

Asp Glu Thr Ser Thr Gln Ser Glu Val Phe Glu His Thr Thr Lys Pro  
 85 90 95

Ile Leu Arg Ser Phe Leu Asn Gly Tyr Asn Cys Thr Val Leu Ala Tyr  
 100 105 110

Gly Ala Thr Gly Ala Gly Lys Thr His Thr Met Leu Gly Ser Ala Asp  
 115 120 125

Glu Pro Gly Val Met Tyr Leu Thr Met Leu His Leu Tyr Lys Cys Met  
 130 135 140

Asp Glu Ile Lys Glu Glu Lys Ile Cys Ser Thr Ala Val Ser Tyr Leu  
 145 150 155 160

Glu Val Tyr Asn Glu Gln Ile Arg Asp Leu Leu Val Asn Ser Gly Pro  
 165 170 175

Leu Ala Val Arg Glu Asp Thr Gln Lys Gly Val Val Val His Gly Leu  
 180 185 190

Thr Leu His Gln Pro Lys Ser Ser Glu Glu Ile Leu His Leu Leu Asp  
195 200 205

Asn Gly Asn Lys Asn Arg Thr Gln His Pro Thr Asp Met Asn Ala Thr  
210 215 220

Ser Ser Arg Ser His Ala Val Phe Gln Ile Tyr Leu Arg Gln Gln Asp  
225 230 235 240

Lys Thr Ala Ser Ile Asn Gln Asn Val Arg Ile Ala Lys Met Ser Leu  
245 250 255

Ile Asp Leu Ala Gly Ser Glu Arg Ala Ser Thr Ser Gly Ala Lys Gly  
260 265 270

Thr Arg Phe Val Glu Gly Thr Asn Ile Asn Arg Ser Leu Leu Ala Leu  
275 280 285

Gly Asn Val Ile Asn Ala Leu Ala Asp Ser Lys Arg Lys Asn Gln His  
290 295 300

Ile Pro Tyr Arg Asn Ser Lys Leu Thr Arg Leu Leu Lys Asp Ser Leu  
305 310 315 320

Gly Gly Asn Cys Gln Thr Ile Met Ile Ala Ala Val Ser Pro Ser Ser  
325 330 335

Val Phe Tyr Asp Asp Thr Tyr Asn Thr Leu Lys Tyr Ala Asn Arg Ala  
340 345 350

Lys Asp Ile Lys Ser Ser Leu Lys Ser Asn Val Leu Asn Val Asn Asn  
355 360 365

His Ile Thr Gln Tyr Val Lys Ile Cys Asn Glu Gln Lys Ala Glu Ile  
370 375 380

Leu Leu Leu Lys Glu Lys Leu Lys Ala Tyr Glu Glu Gln Lys Ala Phe  
385 390 395 400

Thr Asn Glu Asn Asp Gln Ala Lys Leu Met Ile Ser Asn Pro Gln Glu  
405 410 415

Lys Glu Ile Glu Arg Phe Gln Glu Ile Leu Asn Cys Leu Phe Gln Asn  
420 425 430

Arg Glu Glu Ile Arg Gln Glu Tyr Leu Lys Leu Glu Met Leu Leu Lys  
435 440 445

Glu Asn Glu Leu Lys Ser Phe Tyr Gln Gln Gln Cys His Lys Gln Ile  
450 455 460

Glu Met Met Cys Ser Glu Asp Lys Val Glu Lys Ala Thr Gly Lys Arg  
465 470 475 480

Asp His Arg Leu Ala Met Leu Lys Thr Arg Arg Ser Tyr Leu Glu Lys  
485 490 495

Arg Arg Glu Glu Glu Leu Lys Gln Phe Asp Glu Asn Thr Asn Trp Leu  
500 505 510

His Arg Val Glu Lys Glu Met Gly Leu Leu Ser Gln Asn Gly His Ile  
515 520 525

Pro Lys Glu Leu Lys Lys Asp Leu His Cys His His Leu His Leu Gln  
530 535 540

Asn Lys Asp Leu Lys Ala Gln Ile Arg His Met Met Asp Leu Ala Cys  
545 550 555 560

Leu Gln Glu Gln Gln His Arg Gln Thr Glu Ala Val Leu Asn Ala Leu  
565 570 575

Leu Pro Thr Leu Arg Lys Gln Tyr Cys Thr Leu Lys Glu Ala Gly Leu  
580 585 590

Ser Asn Ala Ala Phe Glu Ser Asp Phe Lys Glu Ile Glu His Leu Val  
595 600 605

Glu Arg Lys Lys Val Val Val Trp Ala Asp Gln Thr Gly Glu Gln Pro  
610 615 620

Lys Gln Asn Asp Leu Pro Gly Ile Ser Val Leu Met Thr Phe Ser Gln  
625 630 635 640

Leu Gly Pro Val Gln Pro Ile Pro Cys Cys Ser Ser Ser Gly Gly Thr  
645 650 655

Asn Leu Val Lys Ile Pro Thr Glu Lys Arg Thr Arg Arg Lys Leu Met  
660 665 670

Pro Ser Pro Leu Lys Gly Gln His Thr Leu Lys Ser Pro Pro Ser Gln  
675 680 685

Ser Val Gln Leu Asn Asp Ser Leu Ser Lys Glu Leu Gln Pro Ile Val  
690 695 700

Tyr Thr Pro Glu Asp Cys Arg Lys Ala Phe Gln Asn Pro Ser Thr Val  
705 710 715 720

Thr Leu Met Lys Pro Ser Ser Phe Thr Thr Ser Phe Gln Ala Ile Ser  
725 730 735

Ser Asn Ile Asn Ser Asp Asn Cys Leu Lys Met Leu Cys Glu Val Ala  
740 745 750

Ile Pro His Asn Arg Arg Lys Glu Cys Gly Gln Glu Asp Leu Asp Ser  
755 760 765

Thr Phe Thr Ile Cys Glu Asp Ile Lys Ser Ser Lys Cys Lys Leu Pro  
770 775 780

Glu Gln Glu Ser Leu Pro Asn Asp Asn Lys Asp Ile Leu Gln Arg Leu  
785 790 795 800

Asp Pro Ser Ser Phe Ser Thr Lys His Ser Met Pro Val Pro Ser Met  
805 810 815

Val Pro Ser Tyr Met Ala Met Thr Thr Ala Ala Lys Arg Lys Arg Lys  
820 825 830

Leu Thr Ser Ser Thr Ser Asn Ser Ser Leu Thr Ala Asp Val Asn Ser  
835 840 845

Gly Phe Ala Lys Arg Val Arg Gln Asp Asn Ser Ser Glu Lys His Leu  
850 855 860

Gln Glu Asn Lys Pro Thr Met Glu His Lys Arg Asn Ile Cys Lys Ile  
865 870 875 880

Asn Pro Ser Met Val Arg Lys Phe Gly Arg Asn Ile Ser Lys Gly Asn  
885 890 895

Leu Arg

<210> 260

<211> 71

<212> PRT  
<213> Homo sapiens

<400> 260

Met Ser Lys Asp Arg Ala Asn Met Gln His Arg Tyr Ile Glu Leu Phe  
1 5 10 15

Leu Asn Ser Thr Thr Gly Ala Ser Asn Gly Ala Tyr Ser Ser Gln Val  
20 25 30

Met Gln Gly Met Gly Val Ser Ala Ala Gln Ala Thr Tyr Ser Gly Leu  
35 40 45

Glu Ser Gln Ser Val Ser Gly Cys Tyr Gly Ala Gly Tyr Ser Gly Gln  
50 55 60

Asn Ser Met Gly Gly Tyr Asp  
65 70

<210> 261  
<211> 592  
<212> PRT  
<213> Homo sapiens

<400> 261

Met Ala Pro Gly Gln Leu Ala Leu Phe Ser Val Ser Asp Lys Thr Gly  
1 5 10 15

Leu Val Glu Phe Ala Arg Asn Leu Thr Ala Leu Gly Leu Asn Leu Val  
20 25 30

Ala Ser Gly Gly Thr Ala Lys Ala Leu Arg Asp Ala Gly Leu Ala Val  
35 40 45

Arg Asp Val Ser Glu Leu Thr Gly Phe Pro Glu Met Leu Gly Gly Arg  
50 55 60

Val Lys Thr Leu His Pro Ala Val His Ala Gly Ile Leu Ala Arg Asn  
65 70 75 80

Ile Pro Glu Asp Asn Ala Asp Met Ala Arg Leu Asp Phe Asn Leu Ile  
85 90 95

Arg Val Val Ala Cys Asn Leu Tyr Pro Phe Val Lys Thr Val Ala Ser  
100 105 110

Pro Gly Val Thr Val Glu Glu Ala Val Glu Gln Ile Asp Ile Gly Gly  
115 120 125

Val Thr Leu Leu Arg Ala Ala Ala Lys Asn His Ala Arg Val Thr Val  
130 135 140

Val Cys Glu Pro Glu Asp Tyr Val Val Val Ser Thr Glu Met Gln Ser  
145 150 155 160

Ser Glu Ser Lys Asp Thr Ser Leu Glu Thr Arg Arg Gln Leu Ala Leu  
165 170 175

Lys Ala Phe Thr His Thr Ala Gln Tyr Asp Glu Ala Ile Ser Asp Tyr  
180 185 190

Phe Arg Lys Gln Tyr Ser Lys Gly Val Ser Gln Met Pro Leu Arg Tyr  
195 200 205

Gly Met Asn Pro His Gln Thr Pro Ala Gln Leu Tyr Thr Leu Gln Pro  
210 215 220

Lys Leu Pro Ile Thr Val Leu Asn Gly Ala Pro Gly Phe Ile Asn Leu  
225 230 235 240



Cys Asp Ala Leu Asn Ala Trp Gln Leu Val Lys Glu Leu Lys Glu Ala  
245 250 255

Leu Gly Ile Pro Ala Ala Ala Ser Phe Lys His Val Ser Pro Ala Gly  
260 265 270

Ala Ala Val Gly Ile Pro Leu Ser Glu Asp Glu Ala Lys Val Cys Met  
275 280 285

Val Tyr Asp Leu Tyr Lys Thr Leu Thr Pro Ile Ser Ala Ala Tyr Ala  
290 295 300

Arg Ala Arg Gly Ala Asp Arg Met Ser Ser Phe Gly Asp Phe Val Ala  
305 310 315 320

Leu Ser Asp Val Cys Asp Val Pro Thr Ala Lys Ile Ile Ser Arg Glu  
325 330 335

Val Ser Asp Gly Ile Ile Ala Pro Gly Tyr Glu Glu Glu Ala Leu Thr  
340 345 350

Ile Leu Ser Lys Lys Lys Asn Gly Asn Tyr Cys Val Leu Gln Met Asp  
355 360 365

Gln Ser Tyr Lys Pro Asp Glu Asn Glu Val Arg Thr Leu Phe Gly Leu  
370 375 380

His Leu Ser Gln Lys Arg Asn Asn Gly Val Val Asp Lys Ser Leu Phe  
385 390 395 400

Ser Asn Val Val Thr Lys Asn Lys Asp Leu Pro Glu Ser Ala Leu Arg  
405 410 415

Asp Leu Ile Val Ala Thr Ile Ala Val Lys Tyr Thr Gln Ser Asn Ser  
420 425 430

Val Cys Tyr Ala Lys Asn Gly Gln Val Ile Gly Ile Gly Ala Gly Gln  
435 440 445

Gln Ser Arg Ile His Cys Thr Arg Leu Ala Gly Asp Lys Ala Asn Tyr  
450 455 460

Trp Trp Leu Arg His His Pro Gln Val Leu Ser Met Lys Phe Lys Thr  
465 470 475 480

Gly Val Lys Arg Ala Glu Ile Ser Asn Ala Ile Asp Gln Tyr Val Thr  
485 490 495

Gly Thr Ile Gly Glu Asp Glu Asp Leu Ile Lys Trp Lys Ala Leu Phe  
500 505 510

Glu Glu Val Pro Glu Leu Leu Thr Glu Ala Glu Lys Lys Glu Trp Val  
515 520 525

Glu Lys Leu Thr Glu Val Ser Ile Ser Ser Asp Ala Phe Phe Pro Phe  
530 535 540

Arg Asp Asn Val Asp Arg Ala Lys Arg Ser Gly Val Ala Tyr Ile Ala  
545 550 555 560

Ala Pro Ser Gly Ser Ala Ala Asp Lys Val Val Ile Glu Ala Cys Asp  
565 570 575

Glu Leu Gly Ile Ile Leu Ala His Thr Asn Leu Arg Leu Phe His His  
580 585 590

<210> 262

<211> 62

<212> PRT

<213> Homo sapiens

<400> 262

Met Phe Glu Leu Leu Pro Asn Cys Met Leu Phe Ile Leu Asn Ser Pro  
1 5 10 15

Ser Asp Arg Ile Pro Arg Pro Arg Glu Val Lys Lys Thr Ser Pro Arg  
20 25 30

Ser Ile Thr Leu Leu Leu Thr Ala Pro Asn Leu Leu Asp Ser Lys Ser  
35 40 45

Asn Gly Phe Pro Gly Thr Met Met Leu Val Asp Leu Lys Lys  
50 55 60

<210> 263

<211> 43

<212> PRT

<213> Homo sapiens

<400> 263

Met Thr Ala Leu Phe Pro Gly Leu Ala Pro Glu Thr Glu Gln Pro Asp  
1 5 10 15

Ile His Thr Pro Arg Arg Gln Leu Glu Val Pro Pro Gly Asn Gln Asn  
20 25 30

His Pro Gln Arg Arg Pro Pro Asp Thr Asp Ile  
35 40

<210> 264

<211> 303

<212> PRT

<213> Homo sapiens

<400> 264

Met Lys Pro Thr Gly Thr Asp Pro Arg Ile Leu Ser Ile Ala Ala Glu

1	5	10	15
Val Ala Lys Ser Pro Glu Gln Asn Val Pro Val Ile Leu Leu Lys Leu	20	25	30
Lys Glu Ile Ile Asn Ile Thr Pro Leu Gly Ser Ser Glu Leu Lys Lys	35	40	45
Ile Lys Gln Asp Ile Tyr Cys Tyr Asp Leu Ile Gln Tyr Cys Leu Leu	50	55	60
Val Leu Ser Gln Asp Tyr Ser Arg Ile Gln Gly Gly Trp Thr Thr Ile	65	70	75
Ser Gln Leu Thr Gln Ile Leu Ser His Cys Cys Val Gly Leu Glu Pro	85	90	95
Gly Glu Asp Ala Glu Glu Phe Tyr Asn Glu Leu Leu Pro Ser Ala Ala	100	105	110
Glu Asn Phe Leu Val Leu Gly Arg Gln Leu Gln Thr Cys Phe Ile Asn	115	120	125
Ala Ala Lys Ala Glu Glu Lys Asp Glu Leu Leu His Phe Phe Gln Ile	130	135	140
Val Thr Asp Ser Leu Phe Trp Leu Leu Gly Gly His Val Glu Leu Ile	145	150	155
Gln Asn Val Leu Gln Ser Asp His Phe Leu His Leu Leu Gln Ala Asp	165	170	175
Asn Val Gln Ile Gly Ser Ala Val Met Met Met Leu Gln Asn Ile Leu	180	185	190

Gln Ile Asn Ser Gly Asp Leu Leu Arg Ile Gly Arg Lys Ala Leu Tyr  
195 200 205

Ser Ile Leu Asp Glu Val Ile Phe Lys Leu Phe Ser Thr Pro Ser Pro  
210 215 220

Val Ile Arg Ser Thr Ala Thr Lys Leu Leu Leu Leu Met Ala Glu Ser  
225 230 235 240

His Gln Glu Ile Leu Ile Leu Leu Arg Gln Ser Thr Cys Tyr Lys Gly  
245 250 255

Leu Arg Arg Leu Leu Ser Lys Gln Glu Thr Gly Thr Glu Phe Ser Gln  
260 265 270

Glu Leu Arg Gln Leu Val Gly Leu Leu Ser Pro Met Val Tyr Gln Glu  
275 280 285

Val Glu Glu Gln Ile Gln Thr Ile Lys Asp Val Ala Gly Asp Lys  
290 295 300

<210> 265  
<211> 264  
<212> PRT  
<213> Homo sapiens

<400> 265

Met Leu Leu Glu Ile Asn Arg Gln Lys Glu Glu Glu Asp Leu Lys Leu  
1 5 10 15

Gln Leu Gln Leu Gln Arg Gln Arg Ala Met Arg Leu Ser Arg Glu Leu  
20 25 30

Gln Leu Ser Met Leu Glu Ile Val His Pro Gly Gln Val Glu Lys His  
35 40 45

Tyr Arg Glu Met Glu Glu Lys Ser Ala Leu Ile Ile Gln Lys His Trp  
50 55 60

Arg Gly Tyr Arg Glu Arg Lys Asn Phe His Gln Gln Arg Gln Ser Leu  
65 70 75 80

Ile Glu Tyr Lys Ala Ala Val Thr Leu Gln Arg Ala Ala Leu Lys Phe  
85 90 95

Leu Ala Lys Tyr Arg Lys Lys Lys Lys Leu Phe Ala Pro Trp Arg Gly  
100 105 110

Leu Gln Glu Leu Thr Asp Ala Arg Arg Val Glu Leu Lys Lys Arg Val  
115 120 125

Asp Asp Tyr Val Arg Arg His Leu Gly Ser Pro Met Ser Asp Val Val  
130 135 140

Ser Arg Glu Leu His Ala Gln Ala Gln Glu Arg Leu Gln His Tyr Phe  
145 150 155 160

Met Gly Arg Ala Leu Glu Glu Arg Ala Gln Gln His Arg Glu Ala Leu  
165 170 175

Ile Ala Gln Ile Ser Thr Asn Val Glu Gln Leu Met Lys Ala Pro Ser  
180 185 190

Leu Lys Glu Ala Glu Gly Lys Glu Pro Glu Leu Phe Leu Ser Arg Ser  
195 200 205

Arg Pro Val Ala Ala Lys Ala Lys Gln Ala His Leu Thr Thr Leu Lys  
210 215 220

His Ile Gln Ala Pro Trp Trp Lys Lys Leu Gly Glu Glu Ser Gly Asp  
225 230 235 240

Glu Ile Asp Val Pro Lys Asp Glu Leu Ser Ile Glu Leu Glu Asn Leu  
245 250 255

Phe Ile Gly Gly Thr Lys Pro Pro  
260

<210> 266

<211> 248

<212> PRT

<213> Homo sapiens

<400> 266

Met Ser Gly Gly Gly Val Ile Arg Gly Pro Ala Gly Asn Asn Asp Cys  
1 5 10 15

Arg Ile Tyr Val Gly Asn Leu Pro Pro Asp Ile Arg Thr Lys Asp Ile  
20 25 30

Glu Asp Val Phe Tyr Lys Tyr Gly Ala Ile Arg Asp Ile Asp Leu Lys  
35 40 45

Asn Arg Arg Gly Gly Pro Pro Phe Ala Phe Val Glu Phe Glu Asp Pro  
50 55 60

Arg Asp Ala Glu Asp Ala Val Tyr Gly Arg Asp Gly Tyr Asp Tyr Asp  
65 70 75 80

Gly Tyr Arg Leu Arg Val Glu Phe Pro Arg Ser Gly Arg Gly Thr Gly  
85 90 95

Arg Gly Gly Gly Gly Gly Gly Gly Gly Gly Ala Pro Arg Gly Arg Tyr  
100 105 110

Gly Pro Pro Ser Arg Arg Ser Glu Asn Arg Val Val Val Ser Gly Leu  
115 120 125

Pro Pro Ser Gly Ser Trp Gln Asp Leu Lys Asp His Met Arg Glu Ala  
130 135 140

Gly Asp Val Cys Tyr Ala Asp Val Tyr Arg Asp Gly Thr Gly Val Val  
145 150 155 160

Glu Phe Val Arg Lys Glu Asp Met Thr Tyr Ala Val Arg Lys Leu Asp  
165 170 175

Asn Thr Lys Phe Arg Ser His Glu Gly Glu Thr Ala Tyr Ile Arg Val  
180 185 190

Lys Val Asp Gly Pro Arg Ser Pro Ser Tyr Gly Arg Ser Arg Ser Arg  
195 200 205

Ser Arg Ser Arg Ser Arg Ser Arg Ser Arg Ser Asn Ser Arg Ser Arg  
210 215 220

Ser Tyr Ser Pro Arg Arg Ser Arg Gly Ser Pro Arg Tyr Ser Pro Arg  
225 230 235 240

His Ser Arg Ser Arg Ser Arg Thr  
245

<210> 267

<211> 313

<212> PRT

<213> Homo sapiens

<400> 267

Met Pro Val Ala Gly Ser Glu Leu Pro Arg Arg Pro Leu Pro Pro Ala  
1 5 10 15



Ala Gln Glu Arg Asp Ala Glu Pro Arg Pro Pro His Gly Glu Leu Gln  
20 25 30

Tyr Leu Gly Gln Ile Gln His Ile Leu Arg Cys Gly Val Arg Lys Asp  
35 40 45

Asp Arg Thr Gly Thr Gly Thr Leu Ser Val Phe Gly Met Gln Ala Arg  
50 55 60

Tyr Ser Leu Arg Asp Glu Phe Pro Leu Leu Thr Thr Lys Arg Val Phe  
65 70 75 80

Trp Lys Gly Val Leu Glu Glu Leu Leu Trp Phe Ile Lys Gly Ser Thr  
85 90 95

Asn Ala Lys Glu Leu Ser Ser Lys Gly Val Lys Ile Trp Asp Ala Asn  
100 105 110

Gly Ser Arg Asp Phe Leu Asp Ser Leu Gly Phe Ser Thr Arg Glu Glu  
115 120 125

Gly Asp Leu Gly Pro Val Tyr Gly Phe Gln Trp Arg His Phe Gly Ala  
130 135 140

Glu Tyr Arg Asp Met Glu Ser Asp Tyr Ser Gly Gln Gly Val Asp Gln  
145 150 155 160

Leu Gln Arg Val Ile Asp Thr Ile Lys Thr Asn Pro Asp Asp Arg Arg  
165 170 175

Ile Ile Met Cys Ala Trp Asn Pro Arg Asp Leu Pro Leu Met Ala Leu  
180 185 190

Pro Pro Cys His Ala Leu Cys Gln Phe Tyr Val Val Asn Ser Glu Leu  
195 200 205

Ser Cys Gln Leu Tyr Gln Arg Ser Gly Asp Met Gly Leu Gly Val Pro  
210 215 220

Phe Asn Ile Ala Ser Tyr Ala Leu Leu Thr Tyr Met Ile Ala His Ile  
225 230 235 240

Thr Gly Leu Lys Pro Gly Asp Phe Ile His Thr Leu Gly Asp Ala His  
245 250 255

Ile Tyr Leu Asn His Ile Glu Pro Leu Lys Ile Gln Leu Gln Arg Glu  
260 265 270

Pro Arg Pro Phe Pro Lys Leu Arg Ile Leu Arg Lys Val Glu Lys Ile  
275 280 285

Asp Asp Phe Lys Ala Glu Asp Phe Gln Ile Glu Gly Tyr Asn Pro His  
290 295 300

Pro Thr Ile Lys Met Glu Met Ala Val  
305 310

<210> 268  
<211> 511  
<212> PRT  
<213> Homo sapiens

<400> 268

Met Ala Val Arg Leu Ala Gly Gly Leu Gln Lys Met Val Ala Leu Leu  
1 5 10 15

Asn Lys Thr Asn Val Lys Phe Leu Ala Ile Thr Thr Asp Cys Leu Gln  
20 25 30

Ile Leu Ala Tyr Gly Asn Gln Glu Ser Lys Leu Ile Ile Leu Ala Ser  
35 40 45

Gly Gly Pro Gln Ala Leu Val Asn Ile Met Arg Thr Tyr Thr Tyr Glu  
50 55 60

Lys Leu Leu Trp Thr Thr Ser Arg Val Leu Lys Val Leu Ser Val Cys  
65 70 75 80

Ser Ser Asn Lys Pro Ala Ile Val Glu Ala Gly Gly Met Gln Ala Leu  
85 90 95

Gly Leu His Leu Thr Asp Pro Ser Gln Arg Leu Val Gln Asn Cys Leu  
100 105 110

Trp Thr Leu Arg Asn Leu Ser Asp Ala Ala Thr Lys Gln Glu Gly Met  
115 120 125

Glu Gly Leu Leu Gly Thr Leu Val Gln Leu Leu Gly Ser Asp Asp Ile  
130 135 140

Asn Val Val Thr Cys Ala Ala Gly Ile Leu Ser Asn Leu Thr Cys Asn  
145 150 155 160

Asn Tyr Lys Asn Lys Met Met Val Cys Gln Val Gly Gly Ile Glu Ala  
165 170 175

Leu Val Arg Thr Val Leu Arg Ala Gly Asp Arg Glu Asp Ile Thr Glu  
180 185 190

Pro Ala Ile Cys Ala Leu Arg His Leu Thr Ser Arg His Gln Glu Ala  
195 200 205

Glu Met Ala Gln Asn Ala Val Arg Leu His Tyr Gly Leu Pro Val Val

210		215		220															
Val	Lys	Leu	Leu	His	Pro	Pro	Ser	His	Trp	Pro	Leu	Ile	Lys	Ala	Thr				
225					230					235					240				
Val	Gly	Leu	Ile	Arg	Asn	Leu	Ala	Leu	Cys	Pro	Ala	Asn	His	Ala	Pro				
				245					250					255					
Leu	Arg	Glu	Gln	Gly	Ala	Ile	Pro	Arg	Leu	Val	Gln	Leu	Leu	Val	Arg				
			260					265						270					
Ala	His	Gln	Asp	Thr	Gln	Arg	Arg	Thr	Ser	Met	Gly	Gly	Thr	Gln	Gln				
		275					280					285							
Gln	Phe	Val	Glu	Gly	Val	Arg	Met	Glu	Glu	Ile	Val	Glu	Gly	Cys	Thr				
	290					295					300								
Gly	Ala	Leu	His	Ile	Leu	Ala	Arg	Asp	Val	His	Asn	Arg	Ile	Val	Ile				
305					310					315					320				
Arg	Gly	Leu	Asn	Thr	Ile	Pro	Leu	Phe	Val	Gln	Leu	Leu	Tyr	Ser	Pro				
				325					330					335					
Ile	Glu	Asn	Ile	Gln	Arg	Val	Ala	Ala	Gly	Val	Leu	Cys	Glu	Leu	Ala				
			340					345					350						
Gln	Asp	Lys	Glu	Ala	Ala	Glu	Ala	Ile	Glu	Ala	Glu	Gly	Ala	Thr	Ala				
		355					360					365							
Pro	Leu	Thr	Glu	Leu	Leu	His	Ser	Arg	Asn	Glu	Gly	Val	Ala	Thr	Tyr				
	370					375					380								
Ala	Ala	Ala	Val	Leu	Phe	Arg	Met	Ser	Glu	Asp	Lys	Pro	Gln	Asp	Tyr				
385					390					395					400				

Lys Lys Arg Leu Ser Val Glu Leu Thr Ser Ser Leu Phe Arg Thr Glu  
405 410 415

Pro Met Ala Trp Asn Glu Thr Ala Asp Leu Gly Leu Asp Ile Gly Ala  
420 425 430

Gln Gly Glu Pro Leu Gly Tyr Arg Gln Asp Asp Pro Ser Tyr Arg Ser  
435 440 445

Phe His Ser Gly Gly Tyr Gly Gln Asp Ala Leu Gly Met Asp Pro Met  
450 455 460

Met Glu His Glu Met Gly Gly His His Pro Gly Ala Asp Tyr Pro Val  
465 470 475 480

Asp Gly Leu Pro Asp Leu Gly His Ala Gln Asp Leu Met Asp Gly Leu  
485 490 495

Pro Pro Gly Asp Ser Asn Gln Leu Ala Trp Phe Asp Thr Asp Leu  
500 505 510

<210> 269  
<211> 128  
<212> PRT  
<213> Homo sapiens

<400> 269

Met Phe Asp Val Thr Ser Arg Val Thr Tyr Lys Asn Val Pro Asn Trp  
1 5 10 15

His Arg Asp Leu Val Arg Val Cys Glu Asn Ile Pro Ile Val Leu Cys  
20 25 30

Gly Asn Lys Val Asp Ile Lys Asp Arg Lys Val Lys Ala Lys Ser Ile  
35 40 45

Val Phe His Arg Lys Lys Asn Leu Gln Tyr Tyr Asp Ile Ser Ala Lys  
50 55 60

Ser Asn Tyr Asn Phe Glu Lys Pro Phe Leu Trp Leu Ala Arg Lys Leu  
65 70 75 80

Ile Gly Asp Pro Asn Leu Glu Phe Val Ala Met Pro Ala Leu Ala Pro  
85 90 95

Pro Glu Val Val Met Asp Pro Ala Leu Ala Ala Gln Tyr Glu His Asp  
100 105 110

Leu Glu Val Ala Gln Thr Thr Ala Leu Pro Asp Glu Asp Asp Asp Leu  
115 120 125

<210> 270  
<211> 506  
<212> PRT  
<213> Homo sapiens

<400> 270

Met Glu Asp His Gln His Val Pro Ile Asp Ile Gln Thr Ser Lys Leu  
1 5 10 15

Leu Asp Trp Leu Val Asp Arg Arg His Cys Ser Leu Lys Trp Gln Ser  
20 25 30

Leu Val Leu Thr Ile Arg Glu Lys Ile Asn Ala Ala Ile Gln Asp Met  
35 40 45

Pro Glu Ser Glu Glu Ile Ala Gln Leu Leu Ser Gly Ser Tyr Ile His  
50 55 60

Tyr Phe His Cys Leu Arg Ile Leu Asp Leu Leu Lys Gly Thr Glu Ala

65		70		75		80									
Ser	Thr	Lys	Asn	Ile	Phe	Gly	Arg	Tyr	Ser	Ser	Gln	Arg	Met	Lys	Asp
			85						90					95	
Trp	Gln	Glu	Ile	Ile	Ala	Leu	Tyr	Glu	Lys	Asp	Asn	Thr	Tyr	Leu	Val
			100					105					110		
Glu	Leu	Ser	Ser	Leu	Leu	Val	Arg	Asn	Val	Asn	Tyr	Glu	Ile	Pro	Ser
		115					120					125			
Leu	Lys	Lys	Gln	Ile	Ala	Lys	Cys	Gln	Gln	Leu	Gln	Gln	Glu	Tyr	Ser
	130					135					140				
Arg	Lys	Glu	Glu	Glu	Cys	Gln	Ala	Gly	Ala	Ala	Glu	Met	Arg	Glu	Gln
145					150					155					160
Phe	Tyr	His	Ser	Cys	Lys	Gln	Tyr	Gly	Ile	Thr	Gly	Glu	Asn	Val	Arg
			165						170					175	
Gly	Glu	Leu	Leu	Ala	Leu	Val	Lys	Asp	Leu	Pro	Ser	Gln	Leu	Ala	Glu
			180					185					190		
Ile	Gly	Ala	Ala	Ala	Gln	Gln	Ser	Leu	Gly	Glu	Ala	Ile	Asp	Val	Tyr
	195						200					205			
Gln	Ala	Ser	Val	Gly	Phe	Val	Cys	Glu	Ser	Pro	Thr	Glu	Gln	Val	Leu
	210					215					220				
Pro	Met	Leu	Arg	Phe	Val	Gln	Lys	Arg	Gly	Asn	Ser	Thr	Val	Tyr	Glu
225					230					235					240
Trp	Arg	Thr	Gly	Thr	Glu	Pro	Ser	Val	Val	Glu	Arg	Pro	His	Leu	Glu
				245					250					255	

Glu Leu Pro Glu Gln Val Ala Glu Asp Ala Ile Asp Trp Gly Asp Phe  
260 265 270

Gly Val Glu Ala Val Ser Glu Gly Thr Asp Ser Gly Ile Ser Ala Glu  
275 280 285

Ala Ala Gly Ile Asp Trp Gly Ile Phe Pro Glu Ser Asp Ser Lys Asp  
290 295 300

Pro Gly Gly Asp Gly Ile Asp Trp Gly Asp Asp Ala Val Ala Leu Gln  
305 310 315 320

Ile Thr Val Leu Glu Ala Gly Thr Gln Ala Pro Glu Gly Val Ala Arg  
325 330 335

Gly Pro Asp Ala Leu Thr Leu Leu Glu Tyr Thr Glu Thr Arg Asn Gln  
340 345 350

Phe Leu Asp Glu Leu Met Glu Leu Glu Ile Phe Leu Ala Gln Arg Ala  
355 360 365

Val Glu Leu Ser Glu Glu Ala Asp Val Leu Ser Val Ser Gln Phe Gln  
370 375 380

Leu Ala Pro Ala Ile Leu Gln Gly Gln Thr Lys Glu Lys Met Val Thr  
385 390 395 400

Met Val Ser Val Leu Glu Asp Leu Ile Gly Lys Leu Thr Ser Leu Gln  
405 410 415

Leu Gln His Leu Phe Met Ile Leu Ala Ser Pro Arg Tyr Val Asp Arg  
420 425 430

Val Thr Glu Phe Leu Gln Gln Lys Leu Lys Gln Ser Gln Leu Leu Ala



435

440

445

Leu Lys Lys Glu Leu Met Val Gln Lys Gln Gln Glu Ala Leu Glu Glu  
 450 455 460

Gln Ala Ala Leu Glu Pro Lys Leu Asp Leu Leu Leu Glu Lys Thr Lys  
 465 470 475 480

Glu Leu Gln Lys Leu Ile Glu Ala Asp Ile Ser Lys Arg Tyr Ser Gly  
 485 490 495

Arg Pro Val Asn Leu Met Gly Thr Ser Leu  
 500 505

<210> 271  
 <211> 136  
 <212> PRT  
 <213> Homo sapiens

<400> 271

Met Thr Ser Leu Cys Met Ala Met Thr Glu Glu Gln His Lys Ser Val  
 1 5 10 15

Val Ile Asp Cys Ser Ser Ser Gln Pro Gln Phe Cys Asn Ala Gly Ser  
 20 25 30

Asn Arg Phe Cys Glu Asp Trp Met Gln Ala Phe Leu Asn Gly Ala Lys  
 35 40 45

Gly Gly Asn Pro Phe Leu Phe Arg Gln Val Leu Glu Asn Phe Lys Leu  
 50 55 60

Lys Ala Ile Gln Asp Thr Asn Asn Leu Lys Arg Phe Ile Arg Gln Ala  
 65 70 75 80

Glu Met Asn His Tyr Ala Leu Phe Lys Cys Tyr Met Phe Leu Lys Asn  
85 90 95

Cys Gly Ser Gly Asp Ile Leu Leu Lys Ile Val Lys Val Glu His Glu  
100 105 110

Glu Met Pro Glu Ala Lys Asn Val Ile Ala Val Leu Glu Glu Phe Met  
115 120 125

Lys Glu Ala Leu Asp Gln Ser Phe  
130 135

<210> 272  
<211> 509  
<212> PRT  
<213> Homo sapiens  
  
<400> 272

Met Phe Thr Asn Asp Met Met Glu Cys Lys Gln Asp Glu Ile Val Met  
1 5 10 15

Gln Gly Met Asp Pro Ser Ala Leu Glu Ala Leu Ile Asn Phe Ala Tyr  
20 25 30

Asn Gly Asn Leu Ala Ile Asp Gln Gln Asn Val Gln Ser Leu Leu Met  
35 40 45

Gly Ala Ser Phe Leu Gln Leu Gln Ser Ile Lys Asp Ala Cys Cys Thr  
50 55 60

Phe Leu Arg Glu Arg Leu His Pro Lys Asn Cys Leu Gly Val Arg Gln  
65 70 75 80

Phe Ala Glu Thr Met Met Cys Ala Val Leu Tyr Asp Ala Ala Asn Ser  
85 90 95

Phe Ile His Gln His Phe Val Glu Val Ser Met Ser Glu Glu Phe Leu  
100 105 110

Ala Leu Pro Leu Glu Asp Val Leu Glu Leu Val Ser Arg Asp Glu Leu  
115 120 125

Asn Val Lys Ser Glu Glu Gln Val Phe Glu Ala Ala Leu Ala Trp Val  
130 135 140

Arg Tyr Asp Arg Glu Gln Arg Gly Pro Tyr Leu Pro Glu Leu Leu Ser  
145 150 155 160

Asn Ile Arg Leu Pro Leu Cys Arg Pro Gln Phe Leu Ser Asp Arg Val  
165 170 175

Gln Gln Asp Asp Leu Val Arg Cys Cys His Lys Cys Arg Asp Leu Val  
180 185 190

Asp Glu Ala Lys Asp Tyr His Leu Met Pro Glu Arg Arg Pro His Leu  
195 200 205

Pro Ala Phe Arg Thr Arg Pro Arg Cys Cys Thr Ser Ile Ala Gly Leu  
210 215 220

Ile Tyr Ala Val Gly Gly Leu Asn Ser Ala Gly Asp Ser Leu Asn Val  
225 230 235 240

Val Glu Val Phe Asp Pro Ile Ala Asn Cys Trp Glu Arg Cys Arg Pro  
245 250 255

Met Thr Thr Ala Arg Ser Arg Val Gly Val Ala Val Val Asn Gly Leu  
260 265 270

Leu Tyr Ala Ile Gly Gly Tyr Asp Gly Gln Leu Arg Leu Ser Thr Val

275

280

285

Glu Ala Tyr Asn Pro Glu Thr Asp Thr Trp Thr Arg Val Gly Ser Met  
 290 295 300

Asn Ser Lys Arg Ser Ala Met Gly Thr Val Val Leu Asp Gly Gln Ile  
 305 310 315 320

Tyr Val Cys Gly Gly Tyr Asp Gly Asn Ser Ser Leu Ser Ser Val Glu  
 325 330 335

Thr Tyr Ser Pro Glu Thr Asp Lys Trp Thr Val Val Thr Ser Met Ser  
 340 345 350

Ser Asn Arg Ser Ala Ala Gly Val Thr Val Phe Glu Gly Arg Ile Tyr  
 355 360 365

Val Ser Gly Gly His Asp Gly Leu Gln Ile Phe Ser Ser Val Glu His  
 370 375 380

Tyr Asn His His Thr Ala Thr Trp His Pro Ala Ala Gly Met Leu Asn  
 385 390 395 400

Lys Arg Cys Arg His Gly Ala Ala Ser Leu Gly Ser Lys Met Phe Val  
 405 410 415

Cys Gly Gly Tyr Asp Gly Ser Gly Phe Leu Ser Ile Ala Glu Met Tyr  
 420 425 430

Ser Ser Val Ala Asp Gln Trp Cys Leu Ile Val Pro Met His Thr Arg  
 435 440 445

Arg Ser Arg Val Ser Leu Val Ala Ser Cys Gly Arg Leu Tyr Ala Val  
 450 455 460

Gly Gly Tyr Asp Gly Gln Ser Asn Leu Ser Ser Val Glu Met Tyr Asp  
465 470 475 480

Pro Glu Thr Asp Cys Trp Thr Phe Met Ala Pro Met Ala Cys His Glu  
485 490 495

Gly Gly Val Gly Val Gly Cys Ile Pro Leu Leu Thr Ile  
500 505

<210> 273  
<211> 49  
<212> PRT  
<213> Homo sapiens

<400> 273

Met Ser Phe Ser Ala Ile Leu Ser Pro Phe Ser Ser Leu Ser Val Asn  
1 5 10 15

Val Arg Asn Leu Arg Gln Arg Gly Lys Gly Arg Gln Asn Ser Arg Ile  
20 25 30

Leu Thr Leu Ile Val Lys Ile Leu Phe Lys Thr Trp His Leu Ile Phe  
35 40 45

Leu

<210> 274  
<211> 109  
<212> PRT  
<213> Homo sapiens

<400> 274

Met Glu Ser His Ser Val Thr Gln Ala Gly Val Gln Trp His Asp Leu  
1 5 10 15

Gly Ser Leu His Ser Pro Leu Leu Gly Ser Ser Asp Ser Pro Thr Ser  
20 25 30

Ala Ser Arg Val Ala Gly Ile Thr Gly Met Gln His His Thr Gln Leu  
35 40 45

Ile Phe Leu Phe Leu Val Glu Met Gly Phe His His Val Gly Gln Ala  
50 55 60

Gly Leu Lys Leu Leu Thr Ser Gly Asp Pro Pro Ala Ser Ala Ser Gln  
65 70 75 80

Ser Ala Gly Ile Thr Gly Val Gly His His Thr Trp Pro Ile Met Glu  
85 90 95

Asp Phe Leu Met Val Met Phe Glu Leu Gly Phe Gly Glu  
100 105

<210> 275

<211> 54

<212> PRT

<213> Homo sapiens

<400> 275

Met Glu Ser Asn Ile Ile Tyr Thr Pro Ser Leu Pro Leu Phe Leu Pro  
1 5 10 15

Pro Phe Leu Pro Pro Ser Leu Pro Pro Phe Leu Pro Pro Phe Ser Leu  
20 25 30

Ser Leu Ser Leu Pro Ala Ser Leu Pro Phe Phe Leu Leu Cys Leu Leu  
35 40 45

Pro Cys Asp Trp Gly Lys  
50

<210> 276  
<211> 66  
<212> PRT  
<213> Homo sapiens

<400> 276

Met Leu Leu Tyr Arg Leu Ala Gln Leu Gly Leu Tyr Phe Leu Tyr Ser  
1 5 10 15

Met Pro Val Glu His Gln Met Leu Asn Thr Ser Thr Cys Cys Asp Phe  
20 25 30

Ala Ile Pro Ala His Ile Thr His Leu Ile Ser Phe Val Gly Gly His  
35 40 45

Val Gly Trp Pro Thr His Trp Gln Val Asn Ser Leu Ile Trp Thr Met  
50 55 60

Ser His  
65

<210> 277  
<211> 180  
<212> PRT  
<213> Homo sapiens

<400> 277

Met Arg Pro Leu Thr Glu Glu Glu Thr Arg Val Met Phe Glu Lys Ile  
1 5 10 15

Ala Lys Tyr Ile Gly Glu Asn Leu Gln Leu Leu Val Asp Arg Pro Asp  
20 25 30

Gly Thr Tyr Cys Phe Arg Leu His Asn Asp Arg Val Tyr Tyr Val Ser  
35 40 45

Glu Lys Ile Met Lys Leu Ala Ala Asn Ile Ser Gly Asp Lys Leu Val  
50 55 60

Ser Leu Gly Thr Cys Phe Gly Lys Phe Thr Lys Thr His Lys Phe Arg  
65 70 75 80

Leu His Val Thr Ala Leu Asp Tyr Leu Ala Pro Tyr Ala Lys Tyr Lys  
85 90 95

Val Trp Ile Lys Pro Gly Ala Glu Gln Ser Phe Leu Tyr Gly Asn His  
100 105 110

Val Leu Lys Ser Gly Leu Gly Arg Ile Thr Glu Asn Thr Ser Gln Tyr  
115 120 125

Gln Gly Val Val Val Tyr Ser Met Ala Asp Ile Pro Leu Gly Phe Gly  
130 135 140

Val Ala Ala Lys Ser Thr Gln Asp Cys Arg Lys Val Asp Pro Met Ala  
145 150 155 160

Ile Val Val Phe His Gln Ala Asp Ile Gly Glu Tyr Val Arg His Glu  
165 170 175

Glu Thr Leu Thr  
180

<210> 278

<211> 34

<212> PRT

<213> Homo sapiens

<400> 278

Met Gly Leu Glu Arg Gly Phe Asp Pro Arg Ser Leu Cys Ala Phe Ala



1 5 10 15

Ala Glu Pro His Asn Leu Ser Phe Gln Lys His Phe Gln Asn Ala Asn  
20 25 30

Ile Phe

<210> 279  
<211> 168  
<212> PRT  
<213> Homo sapiens

<400> 279

Met Leu Arg Val Asn Phe Phe Phe Phe Phe Phe Phe Phe Ser Phe  
1 5 10 15

Ser Leu Arg Leu Gly Leu Ala Leu Leu Pro Arg Leu Glu Trp Ser Gly  
20 25 30

Val Ile Leu Ala Tyr Cys Ser Leu Cys Leu Pro Gly Ser Ser Ser Pro  
35 40 45

Ala Ser Ala Ser Gly Val Ala Gly Thr Thr Gly Ser Cys His His Gly  
50 55 60

Gln Pro Thr Phe Ala Cys Phe Val Lys Met Gly Ser His Ser Val Ala  
65 70 75 80

Gln Ala Gly Leu Lys Leu Leu Gly Ser Gly Asp Pro Pro Val Ser Ala  
85 90 95

Ser Gln Ser Ala Gly Ile Thr Ile Val Ser His His Val Gln Leu Glu  
100 105 110

Gly Ser Thr Ser Phe Thr Phe Cys Lys His Ile Cys Ile Phe Thr Pro  
 115 120 125

Pro Phe Pro Ser Phe Ser Leu Phe Ile Ser His Phe Tyr Ile Asp Leu  
 130 135 140

Leu Phe Tyr Asn Lys Thr Leu Leu Pro Lys Lys Lys Lys Lys Lys  
 145 150 155 160

Lys Lys Lys Lys Lys Lys Lys Lys  
 165

<210> 280  
 <211> 158  
 <212> PRT  
 <213> Homo sapiens

<400> 280

Met Met Ile Trp Ile His Gln Asp Leu Phe Tyr Ala Gln Gly Gln Phe  
 1 5 10 15

Leu Phe Phe Phe Phe Phe Phe Phe Phe Phe Phe Phe Glu Thr Gly Ser  
 20 25 30

Arg Phe Val Ala Gln Ala Gly Val Glu Trp Arg Asp Leu Gly Leu Leu  
 35 40 45

Gln Pro Leu Pro Pro Arg Leu Glu Gln Ser Cys Leu Ser Leu Arg Ser  
 50 55 60

Ser Trp Asp His Arg Phe Met Pro Pro Trp Pro Ala Asn Phe Cys Met  
 65 70 75 80

Phe Cys Lys Asp Gly Val Ser Gln Cys Cys Pro Gly Trp Ser Gln Thr  
 85 90 95

Pro Gly Leu Arg Arg Ser Thr Cys Leu Ser Leu Pro Glu Cys Trp Asp  
100 105 110

Tyr Asn Cys Glu Pro Pro Arg Pro Ala Gly Arg Val Asn Ile Phe Tyr  
115 120 125

Ile Leu Gln Ala His Leu His Phe His Pro Thr Leu Pro Leu Leu Leu  
130 135 140

Pro Phe Tyr Ile Pro Phe Leu Tyr Arg Ser Leu Ile Leu Gln  
145 150 155

<210> 281  
<211> 43  
<212> PRT  
<213> Homo sapiens

<400> 281

Met Pro Leu Gly Pro Val Gln Val Tyr Leu Ser Leu Ile Ser Glu Ser  
1 5 10 15

Cys Ser Ser Cys Leu Thr Leu Pro His Gly Ser Ser Val His Leu Ser  
20 25 30

Ile Thr Val Leu Asn Pro Phe Ser Ile Ser Val  
35 40

<210> 282  
<211> 61  
<212> PRT  
<213> Homo sapiens

<400> 282

Met Lys Lys Leu Thr Leu Pro Met Gly Leu Pro Pro Phe Leu Pro Leu  
1 5 10 15

Phe Ser Leu Trp Tyr Pro Ser Arg Val Phe Pro Ser Pro Leu Gln Ser  
20 25 30

Pro Ile Ser His Leu Phe Phe Phe Ser Pro Ser Ser Phe Ser Tyr Cys  
35 40 45

Val Leu Pro Ala Thr Ser His Arg Leu Val Val Tyr Lys  
50 55 60

<210> 283

<211> 207

<212> PRT

<213> Homo sapiens

<400> 283

Met Gln Lys Met Leu Pro Glu Ile Asp Gln Asn Lys Asp Arg Met Leu  
1 5 10 15

Glu Ile Leu Glu Gly Lys Gly Leu Ser Phe Leu Phe Pro Leu Leu Lys  
20 25 30

Leu Glu Lys Glu Leu Leu Lys Gln Ile Lys Leu Asp Pro Ser Pro Gln  
35 40 45

Thr Ile Tyr Lys Trp Ile Lys Asp Asn Ile Ser Pro Lys Leu His Val  
50 55 60

Asp Lys Gly Phe Val Asn Ile Leu Met Thr Ser Phe Leu Gln Tyr Ile  
65 70 75 80

Ser Ser Glu Val Asn Pro Pro Ser Asp Glu Thr Asp Ser Ser Ser Ala  
85 90 95

Pro Ser Lys Glu Gln Leu Glu Gln Glu Lys Gln Leu Leu Leu Ser Phe  
100 105 110

Lys Pro Val Met Gln Lys Phe Leu His Asp His Val Asp Leu Gln Val  
115 120 125

Ser Ala Leu Tyr Ala Leu Gln Val His Cys Tyr Asn Ser Asn Phe Pro  
130 135 140

Lys Gly Met Leu Leu Arg Phe Phe Val His Phe Tyr Asp Met Glu Ile  
145 150 155 160

Ile Glu Glu Glu Ala Phe Leu Ala Trp Lys Glu Asp Ile Thr Gln Glu  
165 170 175

Phe Pro Gly Lys Gly Lys Ala Leu Phe Gln Val Asn Gln Trp Leu Thr  
180 185 190

Trp Leu Glu Thr Ala Glu Glu Glu Glu Ser Glu Glu Glu Ala Asp  
195 200 205

<210> 284  
<211> 105  
<212> PRT  
<213> Homo sapiens

<220>  
<221> UNSURE  
<222> (80)..(80)  
<223> X at position 80 may be "Asp" or "Glu"

<400> 284

Phe Ser Cys Leu Ser Phe Leu Ser Ser Trp Asp Tyr Arg His Ala Pro  
1 5 10 15

Pro Cys Leu Ala Asn Phe Ala Phe Leu Val Glu Thr Gly Phe His His  
20 25 30

Val Gly Gln Ala Gly Leu Lys Leu Pro Thr Ser Gly Asp Leu Pro Thr  
35 40 45

Ser Ala Ser Gln Ser Ala Gly Ile Thr Gly Met Ser Tyr Arg Ala Trp  
50 55 60

Pro Val Tyr Phe Trp Arg Gln Ser Leu Ala Leu Leu Pro Arg Leu Xaa  
65 70 75 80

Gly Ser Gly Ala Thr Leu Asn Ser Ala Ser Arg Val Gln Ala Ile Leu  
85 90 95

Val Arg His Leu Pro Ser Ser Trp Gly  
100 105

<210> 285  
<211> 91  
<212> PRT  
<213> Homo sapiens

<400> 285

Leu Thr Ala Val Phe Phe Ser Phe Ile His Phe Ala Phe Phe Leu Tyr  
1 5 10 15

Phe Arg Phe Asn Ser Thr Phe Lys Lys Ser Tyr Leu Tyr Ile Cys Ile  
20 25 30

Phe Ile Phe Ile Phe Gln Asp Leu Ile Cys Leu Phe Phe Ile Met Gly  
35 40 45

Tyr Tyr Cys Ser Met Val Gln Asn Leu Leu Phe Phe Pro Lys Leu Leu  
50 55 60

Val Ile Phe Lys Ile Phe Val Asn Phe Leu Pro Leu Ala Ser Ser Gln  
65 70 75 80

Val Pro Ala Phe Ser Gln Ser Ala Gly Phe Pro  
85 90

<210> 286  
<211> 75  
<212> PRT  
<213> Homo sapiens

<400> 286

Pro Lys Ser Leu Pro Gly His Pro Leu Ala Tyr Ser Leu Thr Gly His  
1 5 10 15

Ala Pro Ala Val His Thr Gly Ser Tyr Gln Ser Ser Ser Trp Ala Pro  
20 25 30

Phe Gln Thr Ser Glu Glu Ser Phe Gln His Glu Glu Gly Val Gln Asn  
35 40 45

Lys Gln Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu Arg Glu  
50 55 60

Lys Arg Asn Ile Asn Asn Ala Gly Ser Lys Arg  
65 70 75

<210> 287  
<211> 83  
<212> PRT  
<213> Homo sapiens

<400> 287

Met Tyr Cys Val Phe Asn Arg Asn Glu Asp Ala Cys Arg Tyr Gly Ser  
1 5 10 15

Ala Ile Gly Val Leu Ala Ser Leu Ala Tyr Gln Arg Tyr Lys Ala Gly  
20 25 30

Val Asp Asp Phe Ile Gln Asn Tyr Val Asp Pro Thr Pro Asp Pro Asn  
35 40 45

Thr Ala Tyr Ala Ser Tyr Pro Gly Ala Ser Val Asp Asn Tyr Gln Gln  
50 55 60

Pro Pro Phe Thr Gln Asn Ala Glu Thr Thr Glu Gly Tyr Gln Pro Pro  
65 70 75 80

Pro Val Tyr

<210> 288  
<211> 117  
<212> PRT  
<213> Homo sapiens

<400> 288

Met Val Arg Ala Thr Ala Met Pro Thr Ser Leu Ser Arg Cys Thr Ala  
1 5 10 15

Cys Ser Thr Ala Thr Arg Met Pro Ala Ala Met Ala Val Pro Ser Gly  
20 25 30

Cys Trp Pro Pro Trp Pro Thr Ser Ala Thr Arg Leu Ala Trp Thr Thr  
35 40 45

Ser Ser Arg Ile Thr Leu Thr Pro Leu Arg Thr Pro Thr Leu Pro Thr  
50 55 60

Pro Pro Thr Gln Val His Leu Trp Thr Thr Thr Asn Ser His Pro Ser  
65 70 75 80

Pro Arg Thr Arg Arg Pro Pro Arg Ala Thr Ser Arg Pro Leu Cys Thr



85

90

95

Glu Arg Arg Leu Ala Trp Glu Gly Gly Gln Arg Gly Pro Ser Pro Leu  
 100 105 110

Pro Trp Thr Phe Pro  
 115

<210> 289  
 <211> 1280  
 <212> DNA  
 <213> Homo sapiens

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 ggtttacatg ttccaatatg attccaccca tggcaaattc catggcaccg tcaaggctga 240  
 gaacgggaag cttgtcatca atggaaatcc catcaccatc ttccaggagc gagatccctc 300  
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 caccagaag actgtggatg gccctccgg gaaactgtgg cgtgatggcc gcggggctct 660  
 ccagaacatc atccctgcct ctactggcgc tgccaaggct gtgggcaagg tcatccctga 720  
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gtccccacc aactgaatc tcccctcctc acagttgcca tgtagacccc ttgaagaggg	1200
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aaaaaaaaa aaaaaaaaaa	1280

<210> 290  
 <211> 2978  
 <212> DNA  
 <213> Homo sapiens

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gcagacaagt taacgagaat tgctattgtc aaccatgaca aatgtaaacc taagaaatgt	180
cgacaggaat gcaaaaagag ttgtcctgta gttcgaatgg gaaaattatg catagagggt	240
acaccccaga gcaaaatagc atggatttcc gaaactcttt gtattggttg tggatatctgt	300
attaagaaat gccccttttg cgcttatca attgtcaatc taccaagcaa cttggaaaaa	360
gaaaccacac atcgatattg tgccaatgcc ttcaaacttc acaggttgcc tatccctcgt	420
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attttagcag gaaaacaaaa gccaaacctt ggaaagtacg atgatcctcc tgactggcag	540
gagattttga cttatttccg tggatctgaa ttacaaaatt actttacaaa gattctagaa	600
gatgacctaa aagccatcat caaacctcaa tatgtagacc agattcctaa ggctgcaaag	660
gggacagtgg gatctatttt ggaccgaaaa gatgaaacaa agacacaggc aattgtatgt	720

cagcagcttg atttaaccca cctaaaagaa cgaaatgttg aagatctttc aggaggagag	780
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tcaattaagg atgtagaaca aaagaagagt ggaaactact ttttcttgga tgattagact	1920
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ttaatataac ataaaaagcc agttgggttc taaattgtag ttgaaacaca gaaaatgcc	2100

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aaaaatgaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaa	2978

<210> 291  
 <211> 1218  
 <212> DNA  
 <213> Homo sapiens

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catcatgtct gaccaggagg caaaccttc aactgaggac ttgggggata agaaggaagg	180
tgaatatatt aaactcaaag tcattggaca ggatagcagt gagattcact tcaaagtgaa	240
aatgacaaca catctcaaga aactcaaaga atcatactgt caaagacagg gtgttccaat	300

gaattcactc aggtttctct ttgagggtca gagaattgct gataatcata ctccaaaaga	360
actgggaatg gaggaagaag atgtgattga agtttatcag gaacaaacgg ggggtcattc	420
aacagtttag atattctttt tttttttttt cttttccctc aatccttttt tttttttaa	480
aatagttctt ttgtaatgtg gtgttcaaaa cggaattgaa aactggcacc ccatctcttt	540
gaaacatctg gtaatttgaa ttctagtgtc cattattcat tattgtttgt tttcattgtg	600
ctgatttttg gtgatcaagc ctcagtcccc ttcataattac cctctccttt ttaaaaatta	660
cgtgtgcaca gagaggtcac ctttttcagg acattgcatt ttcaggcttg tggtgataaa	720
taagatcgac caatgcaagt gttcataatg actttccaat tggccctgat gttctagcat	780
gtgattactt cactcctgga ctgtgacttt cagtgggaga tggaaagtttt tcagagaact	840
gaactgtgga aaaatgacct ttccttaact tgaagctact tttaaaattt gagggctctgg	900
accaaaaaga gaggaatatc aggttgaagt caagatgaca gataagggtga gagtaatgac	960
taactccaaa gatggcttca ctgaagaaaa ggcattttta gattttttta aaatcttgtc	1020
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tgaatacaac agaacactgc tctttttgat tttatttgta ctttttggcc tgggatatgg	1140
gtttttaaag gacattgtct gtaccagctt cattaaaata aacaatattt gtaaaaatca	1200
aaaaaaaaa aaaaaaaaa	1218

<210> 292  
 <211> 825  
 <212> DNA  
 <213> Homo sapiens

<400> 292	
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tatggccaca gaagttgctg ctgacgctct ggggtgaagaa tggaagggtt atgtggtccg	180

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ccgtgtccgc	ctgctactga	gtaaggggca	ttcctgttac	agaccaagga	gaactggaga	300
aagaaagaga	aatcagttc	gtggttgc	tgtggatgca	aatctgagcg	ttctcaactt	360
ggttattgta	aaaaaaggag	agaaggatat	tcctggactg	actgatacta	cagtgcctcg	420
ccgcctgggc	cccaaagag	ctagcagaat	ccgcaaactt	ttcaatctct	ctaaagaaga	480
tgatgtccgc	cagtatgttg	taagaaagcc	cttaaataaa	gaaggtaaga	aacctaggac	540
caaagcacc	aagattcagc	gtcttggtac	tccacgtgtc	ctgcagcaca	aacggcggcg	600
tattgctctg	aagaagcagc	gtaccaagaa	aaataaagaa	gaggctgcag	aatatgctaa	660
acttttggcc	aagagaatga	aggaggctaa	ggagaagcgc	caggaacaaa	ttgcgaagag	720
acgcagactt	tcctctctgc	gagcttctac	ttctaagtct	gaatccagtc	agaaataaga	780
ttttttgagt	aacaaataaa	taagatcaga	ctctgaaaaa	aaaaa		825

<210> 293

<211> 1978

<212> DNA

<213> Homo sapiens

<400> 293

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caagcttgca	tcatgcgtga	gtataagcta	gtcgttcttg	gctcaggagg	cgttggaaag	180
tctgctttga	ctgtacaatt	tgttcaagga	atttttgtag	aaaaatacga	tcctacgata	240
gaagattctt	atagaaagca	agttgaagta	gatgcacaac	agtgtatgct	tgaaatcttg	300
gatactgcag	gaacggagca	atttacagca	atgagggatt	tatacatgaa	aatggacaa	360
ggatttgcat	tagtttattc	catcacagca	cagtccacat	ttaacgattt	acaagacctg	420
agagaacaga	ttcttcgagt	taaagacact	gatgatgttc	caatgattct	tgttggtaat	480
aagtgtgact	tggaagatga	aagagttgta	gggaaggaac	aaggtcaaaa	tctagcaaga	540

caatggaaca	actgtgcatt	cttagaatct	tctgcaaaat	caaaaataaa	tgттаатgag	600
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aaaaagtcac	catgtcagct	gctttaatat	actaaatgca	ttgtagctct	gagccaggctc	720
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ctagagtttg	cagctggtaa	aaccagaggc	tacatccagt	attactgcta	agagacattc	960
ttcatccacc	aatgttgtag	atgtatgaaa	atggtgtact	gtatacttta	acatgccccca	1020
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aaaagaaagt	ccaagagct	cctatataga	ctactccaga	taacttcgct	tctttgatac	1140
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cgctttgatt	aacacagcta	tatagttttt	ttaattttta	aaaaacctgt	ggagacgggtg	1260
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acagggagcc	acagtattta	aattgaccaa	cctaattgta	caactacttt	gaggtggcca	1860
aatgtaaact	aaaagcctta	attaaagtgg	tgcaattttg	tataacttag	catcagtagt	1920

tcaataaatt tggattgcca tgcaagggct tgccttataa aaaaaaaaaa aaaaaaaaaa 1978

<210> 294

<211> 895

<212> DNA

<213> Homo sapiens

<400> 294

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ttgcagctaa ttaagccgaa gaagcctggg aatcaagttt gaaacaaaga ttaataaagt      840
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<210> 295

<211> 1358

<212> DNA

<213> Homo sapiens



<400> 295

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cctactgttt ccgtctgcac aacgaccggg tgtactatgt gagtgagaag attatgaagc	180
tggccgccaa tatttccggg gacaagctgg tgtcgctggg gacctgcttt ggaaaattca	240
ctaaaacca caagtttcgg ttgcacgtca cagctctgga ttaccttgca ccttatgcc	300
agtataaagt ttggataaag cctggtgcag agcagtcctt cctgtatggg aaccatgtgt	360
tgaaatctgg tctgggtcga atcactgaaa atactttctca gtaccagggc gtggtggtgt	420
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gaaaagtaga ccccatggcg attgtggtat ttcattcaagc agacattggg gaatatgtgc	540
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agtaattggt gtgtggtata gaagaaaaac gggttcaaac cccacttctg ccacctacca	1080
gctatatggc cttgaatgag tcattcagct ttaataaggt tcattttctt ctgtttaaaa	1140
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tggaattaga aatcatgatt gtaggctggg cacagtggct cgcgcctgta atcccagcac	1260
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<210> 296  
 <211> 2033  
 <212> DNA  
 <213> Homo sapiens

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 tgtggagtct gtggatgaat atcagtttgt ggagcgcctg ttaccggcta ccaggatccc 180  
 agatccccca aagcatgaac attatcctac ccctagtggc tggcagcctc ccagagaccc 240  
 cccacccaac ctgccttact ttgtacgacg ctctcggatg cacaacatcc ccgtctacaa 300  
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<211> 1059

<212> DNA

<213> Homo sapiens

<400> 297

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 <213> Homo sapiens

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1769

<210> 299

<211> 463

<212> DNA

<213> Homo sapiens

<400> 299

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240

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300

cgccagtttg gtttcattgt actgacaacc tcagctggca tcatggacca tgaagaagca

360

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420

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463

<210> 300

<211> 703

<212> DNA

<213> Homo sapiens

<400> 300

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120

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180

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240

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360

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420

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<210> 302  
 <211> 905  
 <212> DNA  
 <213> Homo sapiens

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<210> 303  
 <211> 1832  
 <212> DNA  
 <213> Homo sapiens



<400> 303

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 <212> DNA  
 <213> Homo sapiens

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 <211> 759  
 <212> DNA  
 <213> Homo sapiens

<400> 305

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<400> 306

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aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa	aaaaaaaaaa			938

<210> 307  
 <211> 1281  
 <212> DNA  
 <213> Homo sapiens

<400> 307						
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tcaagaacaa	tgctccact	gactatgacc	tatctgacaa	gagcatcaac	cctctgggtg	960
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 <211> 1698  
 <212> DNA  
 <213> Homo sapiens

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gtgtggagtg	ccttatacag	ctttgccatt	ggctacagtt	atctgttcaa	ccaatcaa	300
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aaaaaaaaaa	aaaaaaaaaa					1698

<210> 309

<211> 1102  
<212> DNA  
<213> Homo sapiens

<400> 309  
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gttttactat tctgggtgctg cttcataaca aaaatgaaaa gctgcatgca tctacagcag 180  
gcatggattg tttatgtcgt atgatatcct ttattaagta agttcactta tagtatttct 240  
ataatttgat tcattgccgt aatagagcca tgtaggaaat gcactgattg catgttattg 300  
tggcaagaat atcctaaatg tcattaaaat cctccaacat gatggatcta cttatgggtct 360  
tgtttggtga catgacaaat taacattctt atagttacat ctggaaatga gcatttgaaa 420  
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tattatgcac taaccttttt tggtgggctaa ttaggggttta aatacagaaa caagatttca 540  
aataaaaactg tctttggcag tgagtaaata gcatattttg aagtagagtt gtatactttt 600  
tcataagatg tttgggaatt tttttcctga agtaataatt tattccacat ctacatcagt 660  
gaaagctatc tacctatcct gagtctatct taaaggaaaa aaagaaaaaa accttatctc 720  
ttgcccttat tttgaatttt ccactctttc attaatattgt ttttaagctcc gtggttgaaa 780  
aaaggggtag tgcattttta attgaccttc atacgctttt aaaataagac aaatctactt 840  
gataatgtac ctttatttga tctcaagttg tataaaacca ataaatttgt gttactgcag 900  
tagtaatctt atgcacacgg tgatttcatt ttatatatgc aaagtaggca actgttttct 960  
tagttacaga agtttcaagc ttcacttttg tgcagtagaa acaaaagtag gctacagtct 1020  
gtgccatggt gatgtacagt ttctgaaatt gttttacaag acttttgataa taaaaccctt 1080  
aaacttaaaa aaaaaaaaaa aa 1102

<210> 310  
<211> 519



<212> DNA  
<213> Homo sapiens

<400> 310  
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ctatcctata gatcatccta ttcttatgtg tctttgggta tcagatcaat tacagaataa 120  
ttgtgttggtg atattgtgtc ctaaattgct cattaatttt tatttacaga ttgaaaaaga 180  
gggaccgtgt aaagaaaatg gaaaataaat atctttcaaa gactctttta gataaacacg 240  
atgaggcaaa atcaggttca ttcattcaac gatagtttct aaacagtact taaatagcgg 300  
ttggaaaacg tagccttcat tttatgatth tttcatatgt ggaaatctat tacatgtaat 360  
acaaaacaaa catgtagttt gaaggcggtc agattttctt gagaaatctt tgtagagtta 420  
atthttatgga aattaaaatc agaattaaat gctaaaaaaa aaaaaaaaaa aaaaaaaaaa 480  
taaaaaaaaa aaaaaataaa aaaaaaaaaa aaaaaaaaaa 519

<210> 311  
<211> 2335  
<212> DNA  
<213> Homo sapiens

<400> 311  
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tccaaggcc	acgcacaccc	tcccctgagt	cccaccggag	ccccgcagag	ggcagcgagc	1020
ggctgtcgct	gagcccactg	cggggcgggg	aggccggggc	agacgcctca	cccacagtga	1080
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<210> 312  
 <211> 1027  
 <212> DNA  
 <213> Homo sapiens

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gcggaccgaa	gaacgcagga agggggccgg ggggaccgc ccccgggccgg ccgcagccat 180
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caactctgtc	tctaagttat	ttaaattatg	gctgggggtcg	gggaggggtac	aggggggcact	960
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aaaaaaa						1027

<210> 313  
 <211> 1068  
 <212> DNA  
 <213> Homo sapiens

<400> 313	
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tgtgctggct ggcagggcct gtggctgctg gctgaggggt ctgctgtcct gtgccacccc	1020
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<210> 314

<211> 810

<212> DNA

<213> Homo sapiens

<400> 314

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caaccaggac agaaatcatt atcttagcca ccagaacaca gaatgttctt ggtgagaagg	180
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<210> 315

<211> 2505  
<212> DNA  
<213> Homo sapiens

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<211> 2519

<212> DNA

<213> Homo sapiens

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<213> Homo sapiens

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<212> DNA

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 <213> Homo sapiens

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 <212> DNA  
 <213> Homo sapiens

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aaaaa						2765

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 <211> 1567  
 <212> DNA  
 <213> Homo sapiens

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 <212> DNA  
 <213> Homo sapiens

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aaaa						2224

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 <211> 854  
 <212> DNA  
 <213> Homo sapiens

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aaaaaaaaaa	aaaa					854

<210> 340  
 <211> 1816  
 <212> DNA  
 <213> Homo sapiens

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 <211> 696  
 <212> DNA

<213> Homo sapiens

<400> 341

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<210> 342

<211> 4912

<212> DNA

<213> Homo sapiens

<400> 342

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<212> DNA

<213> Homo sapiens

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 <212> DNA  
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<211> 1324

<212> DNA

<213> Homo sapiens

<400> 354

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tgtgttggag ggtacatcgc cagcacgagt tctctgattg acaccgtacg gtcctatgct	1560
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agcagacata acatctacgt gcaagcaatc aattacccta cgggtccccg gggagaagag	1860
ctcctacgga ttgccccac ccctcaccac acaccccaga tgatgaacta cttccttgag	1920
aatctgctag tcacatggaa gcaagtgggg ctggaactga agcctcattc ctcagctgag	1980
tgcaacttct gcaggaggcc actgcatttt gaagtgatga gtgaaagaga gaagtcctat	2040
ttctcaggct tgagcaagtt ggtatctgct caggcctgag catgacctca attatttcac	2100
ttaaccccag gccattatca tatccagatg gtcttcagag ttgtctttat atgtgaatta	2160
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atggtgaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa	2280
aaaaaaaaaa aaaaaaaaaa aaa	2303

<210> 356

<211> 361

<212> PRT  
<213> Homo sapiens

<400> 356

Met Phe Ser Ser Val Ala His Leu Ala Arg Ala Asn Pro Phe Asn Thr  
1 5 10 15

Pro His Leu Gln Leu Val His Asp Gly Leu Gly Asp Leu Arg Ser Ser  
20 25 30

Ser Pro Gly Pro Thr Gly Gln Pro Arg Arg Pro Arg Asn Leu Ala Ala  
35 40 45

Ala Ala Val Glu Glu Tyr Ser Cys Glu Phe Gly Ser Ala Lys Tyr Tyr  
50 55 60

Ala Leu Cys Gly Phe Gly Gly Val Leu Ser Cys Gly Leu Thr His Thr  
65 70 75 80

Ala Val Val Pro Leu Asp Leu Val Lys Cys Arg Met Gln Val Asp Pro  
85 90 95

Gln Lys Tyr Lys Gly Ile Phe Asn Gly Phe Ser Val Thr Leu Lys Glu  
100 105 110

Asp Gly Val Arg Gly Leu Ala Lys Gly Trp Ala Pro Thr Phe Leu Gly  
115 120 125

Tyr Ser Met Gln Gly Leu Cys Lys Phe Gly Phe Tyr Glu Val Phe Lys  
130 135 140

Val Leu Tyr Ser Asn Met Leu Gly Glu Glu Asn Thr Tyr Leu Trp Arg  
145 150 155 160

Thr Ser Leu Tyr Leu Ala Ala Ser Ala Ser Ala Glu Phe Phe Ala Asp

165

170

175

Ile Ala Leu Ala Pro Met Glu Ala Ala Lys Val Arg Ile Gln Thr Gln  
 180 185 190

Pro Gly Tyr Ala Asn Thr Leu Arg Asp Ala Ala Pro Lys Met Tyr Leu  
 195 200 205

Glu Glu Gly Leu Lys Ala Phe Tyr Lys Gly Val Ala Pro Leu Trp Met  
 210 215 220

Arg Gln Ile Pro Tyr Thr Met Met Lys Phe Ala Cys Phe Glu Arg Thr  
 225 230 235 240

Val Glu Ala Leu Tyr Lys Phe Val Val Pro Lys Pro Arg Ser Glu Cys  
 245 250 255

Ser Lys Pro Glu Gln Leu Val Val Thr Phe Val Ala Gly Tyr Ile Ala  
 260 265 270

Gly Val Phe Cys Ala Ile Val Ser His Pro Ala Asp Ser Val Val Ser  
 275 280 285

Val Leu Asn Lys Glu Lys Gly Ser Ser Ala Ser Leu Val Leu Lys Arg  
 290 295 300

Leu Gly Phe Lys Gly Val Trp Lys Gly Leu Phe Ala Arg Ile Ile Met  
 305 310 315 320

Ile Gly Thr Leu Thr Ala Leu Gln Trp Phe Ile Tyr Asp Ser Val Lys  
 325 330 335

Val Tyr Phe Arg Leu Pro Arg Pro Pro Pro Pro Glu Met Pro Glu Ser  
 340 345 350

Leu Lys Lys Lys Leu Gly Leu Thr Gln  
355 360

<210> 357  
<211> 640  
<212> PRT  
<213> Homo sapiens

<400> 357

Met Glu Ser Val Val Arg Arg Cys Pro Phe Leu Ser Arg Val Pro Gln  
1 5 10 15

Ala Phe Leu Gln Lys Ala Gly Lys Ser Leu Leu Phe Tyr Ala Gln Asn  
20 25 30

Cys Pro Lys Met Met Glu Val Gly Ala Lys Pro Ala Pro Arg Ala Leu  
35 40 45

Ser Thr Ala Ala Val His Tyr Gln Gln Ile Lys Glu Thr Pro Pro Ala  
50 55 60

Ser Glu Lys Asp Lys Thr Ala Lys Ala Lys Val Gln Gln Thr Pro Asp  
65 70 75 80

Gly Ser Gln Gln Ser Pro Asp Gly Thr Gln Leu Pro Ser Gly His Pro  
85 90 95

Leu Pro Ala Thr Ser Gln Gly Thr Ala Ser Lys Cys Pro Phe Leu Ala  
100 105 110

Ala Gln Met Asn Gln Arg Gly Ser Ser Val Phe Cys Lys Ala Ser Leu  
115 120 125

Glu Leu Gln Glu Asp Val Gln Glu Met Asn Ala Val Arg Lys Glu Val  
130 135 140

Ala Glu Thr Ser Ala Gly Pro Ser Val Val Ser Val Lys Thr Asp Gly  
 145 150 155 160

Gly Asp Pro Ser Gly Leu Leu Lys Asn Phe Gln Asp Ile Met Gln Lys  
 165 170 175

Gln Arg Pro Glu Arg Val Ser His Leu Leu Gln Asp Asn Leu Pro Lys  
 180 185 190

Ser Val Ser Thr Phe Gln Tyr Asp Arg Phe Phe Glu Lys Leu Ile Asp  
 195 200 205

Glu Lys Lys Asn Asp His Thr Tyr Arg Val Phe Lys Thr Val Asn Arg  
 210 215 220

Arg Ala His Ile Phe Pro Met Ala Asp Asp Tyr Ser Asp Ser Leu Ile  
 225 230 235 240

Thr Lys Lys Gln Val Ser Val Trp Cys Ser Asn Asp Tyr Leu Gly Met  
 245 250 255

Ser Arg His Pro Arg Val Cys Gly Ala Val Met Asp Thr Leu Lys Gln  
 260 265 270

His Gly Ala Gly Ala Gly Gly Thr Arg Asn Ile Ser Gly Thr Ser Lys  
 275 280 285

Phe His Val Asp Leu Glu Arg Glu Leu Ala Asp Leu His Gly Lys Asp  
 290 295 300

Ala Ala Leu Leu Phe Ser Ser Cys Phe Val Ala Asn Asp Ser Thr Leu  
 305 310 315 320



Phe Thr Leu Ala Lys Met Met Pro Gly Cys Glu Ile Tyr Ser Asp Ser  
325 330 335

Gly Asn His Ala Ser Met Ile Gln Gly Ile Arg Asn Ser Arg Val Pro  
340 345 350

Lys Tyr Ile Phe Arg His Asn Asp Val Ser His Leu Arg Glu Leu Leu  
355 360 365

Gln Arg Ser Asp Pro Ser Val Pro Lys Ile Val Ala Phe Glu Thr Val  
370 375 380

His Ser Met Asp Gly Ala Val Cys Pro Leu Glu Glu Leu Cys Asp Val  
385 390 395 400

Ala His Glu Phe Gly Ala Ile Thr Phe Val Asp Glu Val His Ala Val  
405 410 415

Gly Leu Tyr Gly Ala Arg Gly Gly Gly Ile Gly Asp Arg Asp Gly Val  
420 425 430

Met Pro Lys Met Asp Ile Ile Ser Gly Thr Leu Gly Lys Ala Phe Gly  
435 440 445

Cys Val Gly Gly Tyr Ile Ala Ser Thr Ser Ser Leu Ile Asp Thr Val  
450 455 460

Arg Ser Tyr Ala Ala Gly Phe Ile Phe Thr Thr Ser Leu Pro Pro Met  
465 470 475 480

Leu Leu Ala Gly Ala Leu Glu Ser Val Arg Ile Leu Lys Ser Ala Glu  
485 490 495

Gly Arg Val Leu Arg Arg Gln His Gln Arg Asn Val Lys Leu Met Arg  
500 505 510

Gln Met Leu Met Asp Ala Gly Leu Pro Val Val His Cys Pro Ser His  
515 520 525

Ile Ile Pro Val Arg Val Ala Asp Ala Ala Lys Asn Thr Glu Val Cys  
530 535 540

Asp Glu Leu Met Ser Arg His Asn Ile Tyr Val Gln Ala Ile Asn Tyr  
545 550 555 560

Pro Thr Val Pro Arg Gly Glu Glu Leu Leu Arg Ile Ala Pro Thr Pro  
565 570 575

His His Thr Pro Gln Met Met Asn Tyr Phe Leu Glu Asn Leu Leu Val  
580 585 590

Thr Trp Lys Gln Val Gly Leu Glu Leu Lys Pro His Ser Ser Ala Glu  
595 600 605

Cys Asn Phe Cys Arg Arg Pro Leu His Phe Glu Val Met Ser Glu Arg  
610 615 620

Glu Lys Ser Tyr Phe Ser Gly Leu Ser Lys Leu Val Ser Ala Gln Ala  
625 630 635 640

<210> 358

<211> 9

<212> PRT

<213> Artificial

<220>

<223> Designed peptide recognized by HLA-A2 restricted cytotoxic T  
lymphocytes

<400> 358

Gln Ile Gly Ala Lys Phe Trp Glu Val

1

5

<210> 359  
<211> 9  
<212> PRT  
<213> Artificial

<220>  
<223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes

<400> 359

Phe Met Pro Gly Phe Ala Pro Leu Thr  
1 5

<210> 360  
<211> 10  
<212> PRT  
<213> Artificial

<220>  
<223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes

<400> 360

Thr Leu Leu Val Ala Val Phe Gln Asp Val  
1 5 10

<210> 361  
<211> 10  
<212> PRT  
<213> Artificial

<220>  
<223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes

<400> 361

Val Ala Tyr Leu Gly Phe Val Phe Tyr Leu  
1 5 10

<210> 362  
 <211> 10  
 <212> PRT  
 <213> Artificial  
  
 <220>  
 <223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes  
  
 <400> 362

Leu	Leu	Pro	Thr	Leu	Arg	Lys	Gln	Tyr	Cys
1				5					10

<210> 363  
 <211> 9  
 <212> PRT  
 <213> Artificial  
  
 <220>  
 <223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes  
  
 <400> 363

Met	Val	Tyr	Asp	Leu	Tyr	Lys	Thr	Leu
1				5				

<210> 364  
 <211> 10  
 <212> PRT  
 <213> Artificial  
  
 <220>  
 <223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes  
  
 <400> 364

Gly	Leu	Cys	Lys	Phe	Gly	Phe	Tyr	Glu	Val
1				5					10

<210> 365  
 <211> 9  
 <212> PRT  
 <213> Artificial  
  
 <220>  
 <223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes  
  
 <400> 365

Phe Gly Phe Tyr Glu Val Phe Lys Val  
 1 5

<210> 366  
 <211> 9  
 <212> PRT  
 <213> Artificial  
  
 <220>  
 <223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes  
  
 <400> 366

Leu Gln Trp Phe Ile Tyr Asp Ser Val  
 1 5

<210> 367  
 <211> 10  
 <212> PRT  
 <213> Artificial  
  
 <220>  
 <223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes  
  
 <400> 367

Ala Leu Ala Pro Met Glu Ala Ala Lys Val  
 1 5 10

<210> 368

<211> 10

<212> PRT

<213> Artificial

<220>

<223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes

<400> 368

Arg Thr Val Glu Ala Leu Tyr Lys Phe Val

1 5 10

<210> 369

<211> 9

<212> PRT

<213> Artificial

<220>

<223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes

<400> 369

Val Leu Ser Cys Gly Leu Thr His Thr

1 5

<210> 370

<211> 9

<212> PRT

<213> Artificial

<220>

<223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes

<400> 370

Ala Leu Leu Phe Ser Ser Cys Phe Val

1 5

<210> 371

<211> 10  
 <212> PRT  
 <213> Artificial  
  
 <220>  
 <223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes  
  
 <400> 371

Phe	Leu	Ser	Arg	Val	Pro	Gln	Ala	Phe	Leu
1				5					10

<210> 372  
 <211> 10  
 <212> PRT  
 <213> Artificial  
  
 <220>  
 <223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes  
  
 <400> 372

Met	Leu	Leu	Ala	Gly	Ala	Leu	Glu	Ser	Val
1				5					10

<210> 373  
 <211> 10  
 <212> PRT  
 <213> Artificial  
  
 <220>  
 <223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes  
  
 <400> 373

Leu	Leu	Gln	Asp	Asn	Leu	Pro	Lys	Ser	Val
1				5					10

<210> 374  
 <211> 9

<212> PRT

<213> Artificial

<220>

<223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes

<400> 374

Leu Met Ser Arg His Asn Ile Tyr Val

1 5

<210> 375

<211> 10

<212> PRT

<213> Artificial

<220>

<223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes

<400> 375

Ser Leu Ile Asp Thr Val Arg Ser Tyr Ala

1 5 10

<210> 376

<211> 10

<212> PRT

<213> Artificial

<220>

<223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes

<400> 376

Phe Leu Gln Lys Ala Gly Lys Ser Leu Leu

1 5 10

<210> 377

<211> 9

<212> PRT



<213> Artificial

<220>

<223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes

<400> 377

Leu Leu Phe Ser Ser Cys Phe Val Ala  
1 5

<210> 378

<211> 9

<212> PRT

<213> Artificial

<220>

<223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes

<400> 378

Gly Leu Leu Lys Asn Phe Gln Asp Ile  
1 5

<210> 379

<211> 9

<212> PRT

<213> Artificial

<220>

<223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes

<400> 379

Ser Val Trp Cys Ser Asn Asp Tyr Leu  
1 5

<210> 380

<211> 10

<212> PRT

<213> Artificial

<220>

<223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes

<400> 380

Leu Leu Val Thr Trp Lys Gln Val Gly Leu  
1 5 10

<210> 381

<211> 10

<212> PRT

<213> Artificial

<220>

<223> Designed peptide recognized by HLA-A2 restricted cytotoxic T lymphocytes

<400> 381

Val Ala Asn Asp Ser Thr Leu Phe Thr Leu  
1 5 10

<210> 382

<211> 974

<212> DNA

<213> Homo sapiens

<400> 382

gaaacaagtt	gaagtacctg	gctttcctcc	gcaagcggat	gaacaccaac	ccttcccagag	60
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cccacaaaac	caagcgaggc	caggccgctc	tggaccgtct	caaggtgttt	gacggcatcc	180
cacctcccta	cgacaagaaa	aagcggatgg	tggttcctgc	tgccctcaag	gtcgtgcgtc	240
tgaagcctac	aagaaagttt	gcctatctgg	ggcgcctggc	tcacgagggt	ggctggaagt	300
accaggcagt	gacagccacc	ctggaggaga	agaggaaaga	gaaagccaag	atccactacc	360
ggaagaagaa	acagctcatg	aggctacgga	aacaggccga	gaagaacgtg	gagaagaaaa	420

ttgacaaata	cacagaggtc	ctcaagaccc	acggactcct	ggtctgagcc	caataaagac	480
tggttaattcc	tcatgcggtg	cctgcccttc	ctccattggt	gccctggaat	gtacgggacc	540
caggggcagc	agcagtccag	gtgccacagg	cagccctggg	acataggaag	ctgggagcaa	600
ggaaagggtc	ttagtcaactg	cctcccgaag	ttgcttgaaa	gcactcggag	aattgtgcag	660
gtgtcattta	tctatgacca	ataggaagag	caaccagtta	ctatgagtga	aaggagacca	720
gaagactgat	tggagggccc	tatcttgtga	gtggggcatc	tggttgactt	cccacctggt	780
catatactct	gcagctgtta	gaatgtgcaa	gcacttgggg	acagcatgag	cttgctgttg	840
tacacagggc	atttctagaa	gcagaaatag	actgggaaga	tgcacaacca	aggggttaca	900
ggcatcgccc	atgctcctca	cctgtatttt	gtaatcagaa	ataaattgct	tttaaagaaa	960
aaaaaaaaaa	aaaa					974

<210> 383  
 <211> 821  
 <212> DNA  
 <213> Homo sapiens

<400> 383	
ggggccgggg	ccgaggccgc
ggagctcgcg	gaggcaaggc
cgaggataag	gagtggatgc
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ccgtcaccaa	ggtgggccgc
ttgggtcaagg	acatgaagat
caagtccttg	gaggagatct
120	
atctcttctc	cctgcccatt
aaggaatcag	agatcattga
tttcttcctg	ggggcctctc
180	
tcaaggatga	ggttttgaag
attatgccag	tgcagaagca
gacccgtgcc	ggccagcgca
240	
ccaggttcaa	ggcatttggt
gctatcgggg	actacaatgg
ccacgtcggt	ctgggtgtta
300	
agtgtccaa	ggaggtggcc
accgccatcc	gtggggccat
catcctggcc	aagctctcca
360	
tcgtccccgt	gcgcagaggc
tactggggga	acaagatcgg
caagccccac	actgtccctt
420	
gcaaggtgac	aggccgctgc
ggctctgtgc	tggtacgcct
catccctgca	cccaggggca
480	
ctggcatcgt	ctccgcacct
gtgcctaaga	agctgctcat
gatggctggg	atcgatgact
540	
gctacacctc	agccccgggg
tgactgcca	ccctgggcaa
cttcgccaa	gccacctttg
600	

atgccatttc taagacctac agctacctga ccccgacct ctggaaggag actgtattca	660
ccaagtctcc ctatcaggag ttcactgacc acctcgtcaa gacccacacc agagtctccg	720
tgcagcggac tcaggctcca gctgtggcta caacataggg tttttataca agaaaaataa	780
agtgaattta gcgtgaaaaa aaaaaaaaaa aaaaaaaaaa a	821

<210> 384  
 <211> 741  
 <212> DNA  
 <213> Homo sapiens

<400> 384	
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gaagtctctgc acgggaacca gcgcaagcgc cgcaagttcc tggagacggt ggagttgcag	120
atcagcttga agaactatga tccccagaag gacaagcgct tctcgggcac cgtcaggctt	180
aagtccactc cccgccctaa gttctctgtg tgtgtcctgg gggaccagca gcactgtgac	240
gaggctaagg ccgtggatat cccccacatg gacatcgagg cgctgaaaaa actcaacaag	300
aataaaaaaac tgggtcaagaa gctggccaag aagtatgatg cgtttttggc ctcagagtct	360
ctgatcaagc agattccacg aatcctcggc ccaggtttaa ataaggcagg aaagttccct	420
tccttgctca cacacaacga aaacatgggt gccaaagtgg atgaggtgaa gtccacaatc	480
aagttccaaa tgaagaaggt gttatgtctg gctgtagctg ttggtcacgt gaagatgaca	540
gacgatgagc ttgtgtataa cattcacctg gctgtcaact tcttggtgtc attgctcaag	600
aaaaactggc agaatgtccg ggccttatat atcaagagcc ccatgggcaa gccccagcgc	660
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<210> 385  
 <211> 142  
 <212> PRT

<213> Homo sapiens

<400> 385

Met Asn Thr Asn Pro Ser Arg Gly Pro Tyr His Phe Arg Ala Pro Ser  
1 5 10 15

Arg Ile Phe Trp Arg Thr Val Arg Gly Met Leu Pro His Lys Thr Lys  
20 25 30

Arg Gly Gln Ala Ala Leu Asp Arg Leu Lys Val Phe Asp Gly Ile Pro  
35 40 45

Pro Pro Tyr Asp Lys Lys Lys Arg Met Val Val Pro Ala Ala Leu Lys  
50 55 60

Val Val Arg Leu Lys Pro Thr Arg Lys Phe Ala Tyr Leu Gly Arg Leu  
65 70 75 80

Ala His Glu Val Gly Trp Lys Tyr Gln Ala Val Thr Ala Thr Leu Glu  
85 90 95

Glu Lys Arg Lys Glu Lys Ala Lys Ile His Tyr Arg Lys Lys Lys Gln  
100 105 110

Leu Met Arg Leu Arg Lys Gln Ala Glu Lys Asn Val Glu Lys Lys Ile  
115 120 125

Asp Lys Tyr Thr Glu Val Leu Lys Thr His Gly Leu Leu Val  
130 135 140

<210> 386

<211> 233

<212> PRT

<213> Homo sapiens

<400> 386

Met Pro Val Thr Lys Leu Gly Arg Leu Val Lys Asp Met Lys Ile Lys  
1 5 10 15

Ser Leu Glu Glu Ile Tyr Leu Phe Ser Leu Pro Ile Lys Glu Ser Glu  
20 25 30

Ile Ile Asp Phe Phe Leu Gly Ala Ser Leu Lys Asp Glu Val Leu Lys  
35 40 45

Ile Met Pro Val Gln Lys Gln Thr Arg Ala Gly Gln Arg Thr Arg Phe  
50 55 60

Lys Ala Phe Val Ala Ile Gly Asp Tyr Asn Gly His Val Gly Leu Gly  
65 70 75 80

Val Lys Cys Ser Lys Glu Val Ala Thr Ala Ile Arg Gly Ala Ile Ile  
85 90 95

Leu Ala Lys Leu Ser Ile Val Pro Val Arg Arg Gly Tyr Trp Gly Asn  
100 105 110

Lys Ile Gly Lys Pro His Thr Val Pro Cys Lys Val Thr Gly Arg Cys  
115 120 125

Gly Ser Val Leu Val Arg Leu Ile Pro Ala Pro Arg Gly Thr Gly Ile  
130 135 140

Val Ser Ala Pro Val Pro Lys Lys Leu Leu Met Met Ala Gly Ile Asp  
145 150 155 160

Asp Cys Tyr Thr Ser Ala Arg Gly Cys Thr Ala Thr Leu Gly Asn Phe  
165 170 175

Ala Lys Ala Thr Phe Asp Ala Ile Ser Lys Thr Tyr Ser Tyr Leu Thr

180

185

190

Pro Asp Leu Trp Lys Glu Thr Val Phe Thr Lys Ser Pro Tyr Gln Glu  
 195 200 205

Phe Thr Asp His Leu Val Lys Thr His Thr Arg Val Ser Val Gln Arg  
 210 215 220

Thr Gln Ala Pro Ala Val Ala Thr Thr  
 225 230

<210> 387

<211> 217

<212> PRT

<213> Homo sapiens

<400> 387

Met Ser Ser Lys Val Ser Arg Asp Thr Leu Tyr Glu Ala Val Arg Glu  
 1 5 10 15

Val Leu His Gly Asn Gln Arg Lys Arg Arg Lys Phe Leu Glu Thr Val  
 20 25 30

Glu Leu Gln Ile Ser Leu Lys Asn Tyr Asp Pro Gln Lys Asp Lys Arg  
 35 40 45

Phe Ser Gly Thr Val Arg Leu Lys Ser Thr Pro Arg Pro Lys Phe Ser  
 50 55 60

Val Cys Val Leu Gly Asp Gln Gln His Cys Asp Glu Ala Lys Ala Val  
 65 70 75 80

Asp Ile Pro His Met Asp Ile Glu Ala Leu Lys Lys Leu Asn Lys Asn  
 85 90 95

Lys Lys Leu Val Lys Lys Leu Ala Lys Lys Tyr Asp Ala Phe Leu Ala  
100 105 110

Ser Glu Ser Leu Ile Lys Gln Ile Pro Arg Ile Leu Gly Pro Gly Leu  
115 120 125

Asn Lys Ala Gly Lys Phe Pro Ser Leu Leu Thr His Asn Glu Asn Met  
130 135 140

Val Ala Lys Val Asp Glu Val Lys Ser Thr Ile Lys Phe Gln Met Lys  
145 150 155 160

Lys Val Leu Cys Leu Ala Val Ala Val Gly His Val Lys Met Thr Asp  
165 170 175

Asp Glu Leu Val Tyr Asn Ile His Leu Ala Val Asn Phe Leu Val Ser  
180 185 190

Leu Leu Lys Lys Asn Trp Gln Asn Val Arg Ala Leu Tyr Ile Lys Ser  
195 200 205

Pro Met Gly Lys Pro Gln Arg Leu Tyr  
210 215

<210> 388

<211> 9

<212> PRT

<213> Artificial

<220>

<223> Designed peptide recognized by HLA-A26 restricted cytotoxic T lymphocytes

<400> 388

Leu Val Leu Asp Gly Arg Gly His Leu  
1 5



<210> 389  
<211> 9  
<212> PRT  
<213> Artificial  
  
<220>  
<223> Designed peptide recognized by HLA-A26 restricted cytotoxic T lymphocytes  
  
<400> 389

His Leu Leu Gly Arg Leu Ala Ala Ile  
1 5

<210> 390  
<211> 9  
<212> PRT  
<213> Artificial  
  
<220>  
<223> Designed peptide recognized by HLA-A26 restricted cytotoxic T lymphocytes  
  
<400> 390

Ala Ile Val Ala Lys Gln Val Leu Leu  
1 5

<210> 391  
<211> 9  
<212> PRT  
<213> Artificial  
  
<220>  
<223> Designed peptide recognized by HLA-A26 restricted cytotoxic T lymphocytes  
  
<400> 391

Val Leu Leu Gly Arg Lys Val Val Val  
1 5

<210> 392

<211> 9

<212> PRT

<213> Artificial

<220>

<223> Designed peptide recognized by HLA-A26 restricted cytotoxic T lymphocytes

<400> 392

Ala Phe Leu Arg Lys Arg Met Asn Thr

1

5

<210> 393

<211> 9

<212> PRT

<213> Artificial

<220>

<223> Designed peptide recognized by HLA-A26 restricted cytotoxic T lymphocytes

<400> 393

His Phe Arg Ala Pro Ser Arg Ile Phe

1

5

<210> 394

<211> 9

<212> PRT

<213> Artificial

<220>

<223> Designed peptide recognized by HLA-A26 restricted cytotoxic T lymphocytes

<400> 394

Val Leu Lys Thr His Gly Leu Leu Val

1

5

<210> 395

<211> 9  
<212> PRT  
<213> Artificial  
  
<220>  
<223> Designed peptide recognized by HLA-A26 restricted cytotoxic T lymphocytes  
  
<400> 395

Pro Val Thr Lys Leu Gly Arg Leu Val  
1 5

<210> 396  
<211> 9  
<212> PRT  
<213> Artificial  
  
<220>  
<223> Designed peptide recognized by HLA-A26 restricted cytotoxic T lymphocytes  
  
<400> 396

Lys Ile Met Pro Val Gln Lys Gln Thr  
1 5

<210> 397  
<211> 9  
<212> PRT  
<213> Artificial  
  
<220>  
<223> Designed peptide recognized by HLA-A26 restricted cytotoxic T lymphocytes  
  
<400> 397

Val Thr Gly Arg Cys Gly Ser Val Leu  
1 5

<210> 398  
<211> 9

<212> PRT  
<213> Artificial

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Arg Leu Ile Pro Ala Pro Arg Gly Thr  
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Lys Val Asp Glu Val Lys Ser Thr Ile  
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Lys Val Leu Cys Leu Ala Val Ala Val  
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Ser Thr Met Gly Lys Pro Gln Arg Leu  
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